FLORIDA WILDLIFE®

Volume 47, Number 1
January-February 1993

Use Your Consumer Power

CLARK FRAZIER

Americans consume goods in numbers that far exceed our proportionate size in the world's population. And we indirectly influence consumption in other nations. Our consumer decisions have considerable leverage, and we should begin to use that leverage to help stave off wildlife extinction. By reducing demand for and waste of electricity, petroleum products, metals, paper and wood products and land, we can help reduce the loss of wildlife habitat. We also can avoid discarding toxic, non-biodegradable wastes and avoid creating pollution that is injurious to wildlife and humans alike.

What You Can Do:

- Worldwide, many species are threatened or endangered to the brink of extinction because of habitat loss and poaching – including elephants, parrots, finches, cockatiels, corals and reptiles. Before you buy animal souvenirs or other products, make sure they are made from sources **other than** endangered species.

- Many of Florida's rarer plant species have been collected so thoroughly that few individuals remain in the wild. Orchids, airplants and various palms native to tropical hardwood hammocks in south Florida have suffered greatly from such exploitation. Buy only plants or bulbs you know have not been collected from the wild.

- Pesticides poison groundwater, kill wildlife and trigger the spead of insects and weeds resistant to them. Buy non-polluting products. Read labels and buy the least toxic product available for cleaning, pest control, lawn care and other jobs. Two books will help you buy and use products safe for you and for wildlife: *Nontoxic and Natural: How to Avoid Dangerous Everyday Products and Buy or Make Safe Ones* and *The Nontoxic Home: Protecting Yourself and Your Family from Everyday Toxics and Health Hazards,* written by Debra Lynn Dadd (St. Martins Press, New York).

- Conserve energy and reduce the demand that leads us to drill for oil in sensitive wildlife habitats, dam rivers for hydro-power and contribute to global warming. When you buy a car, make sure its gas mileage is as efficient as possible for its size and purpose.

WHAT
HAVE
YOU
DONE FOR
WILDLIFE
LATELY?

To learn more about what you can do to help Florida's wildlife, contact the Bureau of Nongame and Endangered Species, Florida Game and Fresh Water Fish Commission.

FLORIDA WILDLIFE®

Volume 47, Number 1 January-February 1993

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FLORIDA WILDLIFE (ISSN 0015-4369) is published bimonthly by the Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Second-class postage paid at Tallahassee, Florida. Post Office Publication Number 202440. Materials in FLORIDA WILDLIFE include copyrighted materials that are property of individual contributors. Written permission to use the Publisher's materials will be granted by the editor for noncommercial, public informational purposes. Manuscripts, photographs and other submissions are received only with the understanding that the Publisher assumes no responsibility for any loss or damage. Contributors should request "How To Submit" before sending materials.

Subscription prices: $7 for one year (six issues); $14 for two years (12 issues); $20 for three years (18 issues). Postmaster: Please send address changes to: FLORIDA WILDLIFE, Circulation Office, 620 South Meridian Street, Tallahassee, FL 32399-1600.

Read about the Commission's involvement in a project to re-establish the endangered whooping crane in Florida, page 10.

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Covers

In 1993 the Commission marks its 50th anniversary. The inside back cover outlines how the agency came to be. Art editor Peggy Perkerson painted Florida's favorite game animal on our front cover. Tom Ulrich photographed the rabbit on the back cover.

Printed on recycled paper.

MERCURY

By Homer Royals and Ted Lange

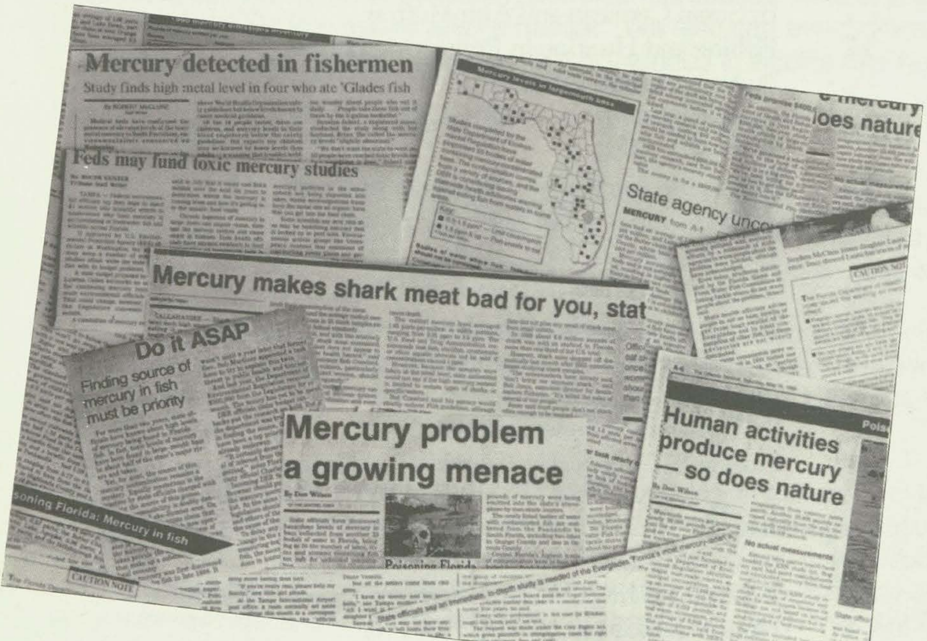
A day rarely passes when a major environmental problem does not make the headlines. In Florida, mercury contamination in fish and wildlife is in the news...ANGLERS WARNED TO LIMIT BASS CONSUMPTION; MERCURY RESPONSIBLE IN PANTHER DEATH; PUBLIC OUTCRY AGAINST MERCURY POLLUTION GROWS.

What triggered this inundation of bad news? Nearly five years ago, fish collected from the Everglades were found to contain concentrations of mercury that exceeded the federal action level of 1.0 part per million (ppm). Since then the Florida Department of Health and Rehabilitative Services (HRS) has established a level of concern of 0.5 ppm in edible muscle tissue of fish. Concentrations exceeding this level are considered a threat to human health. The Game and Fresh Water Fish Commission and other state and federal agencies are continuing to investigate the range and extent of mercury contamination.

It has not been feasible to test fish from every body of water in the state, since there are over 3 million acres of lakes and 12,000 miles of rivers, streams and canals. Therefore, sampling locations have been selected for their fishing pressure, long term contaminant records and susceptibility to mercury contamination due to water quality.

Health advisories identify three levels of mercury contamination, with specific recommendations for consumption of fish within each concentration range. Scientists have analyzed over 3,000 fish from 150 lakes, rivers and canals for mercury, and all waters sampled have fish mercury concentrations that fall into one of the concentration ranges.

Advisories urging limited or no consumption of largemouth bass and other species have been issued for 55 of these water bodies. These advisories are based on servings of one-half pound of fish. Since no special cooking or cleaning procedures can reduce the mercury in the fillet and many waters may never be tested, it's best to avoid consuming great quantities of freshwater fish.



Mercury detected in fishermen

Study finds high metal level in four who ate 'Glades fish

Feds may fund toxic mercury studies

State agency unco

Mercury makes shark meat bad for you, stat

Do it ASAP

Finding source of mercury in fish must be priority

Mercury problem a growing menace

Human activities produce mercury — so does nature

Sources of Mercury

Very low concentrations of mercury occur naturally in rock, soil, air, water and plant and animal tissue. It was historically used as an amalgam in the purification of gold and in the manufacture of felt hats and mirrors. In more recent times, mercury has been used in thermometers, electrical switches, pharmaceuticals and mildew-resistant paints. In addition, mercury has been used in various industrial processes, including the manufacture of chlorine, sodium hydroxide and PVC; as a slimecide in the pulp and paper industry; and is discharged into the atmosphere by the burning of coal and household trash.

A new study by the Florida Department of Environmental Regulation details garbage and medical waste incineration as the biggest man-made sources of mercury in Florida. The report estimated mercury emissions to the atmosphere in Florida from sources including power plants, sugarcane processing, cement manufacturing, fluorescent lighting fixtures and certain paints.

Fish with high mercury concentrations recently have been found in Florida lakes with no obvious sources of mercury. Researchers attribute mercury concentrations in fish from remote, pristine lakes in Wisconsin, Minnesota and Finland to atmospheric transport. Most likely, similar processes are responsible for mercury enrichment in Florida lakes. Transport of mercury over long distances in the atmosphere serves as one component in the global mercury cycle. Mercury can remain suspended in the atmosphere for a year or more, as either a particulate or vapor.

Because of this long-range transport, mercury potentially can be found in almost any water in the world. An estimated 13 to 81 million pounds of mercury are discharged into the atmosphere from both natural and man-made sources each year. Man-made sources are thought to contribute 10 to 80 percent of the total atmospheric emissions. Although these estimates vary greatly, the important fact to note is that man is increasing the amount of mercury released into the atmosphere, making more available for transport and deposition into remote waters.

Natural emissions of mercury remain relatively constant while industry, incineration, agriculture and energy production, the largest man-made emissions, are increasing. For over 2,000 years there has been a steady increase in the use of mercury, but in the United States we have reduced our use from 2,241 tons in 1980 to 793 tons in 1990. Much of this dramatic decline is attributable to a 90-percent reduction in the use of mercury in batteries. Since batteries account for 50 to 90 percent of the flue gas mercury from incineration, a major source has been reduced. Discontinuing the use of mercurial fungicides in paints sold in the United States in 1991 was another significant source of reduction.

Atmospheric mercury eventually will fall to the earth's surface with rain or attached to small particles in the air. Various chemical forms of mercury fall to the earth and onto the aquatic environment, attaching to particulate matter and settling into the bottom sediments. Some of the mercury is converted into organic methylmercury, which is readily absorbed by fish, either directly from water passing over the gills or through their diet. Organic methylmercury is the most toxic form of mercury, and it is the predominant form of mercury found in freshwater fish. However, most mercury found in the aquatic environment is in less toxic inorganic forms.

Fish can accumulate high concentrations of mercury from the food they consume due to mercury's ability to biomagnify in living organisms. Biomagnification describes the ability of methylmercury to increase in concentration as it moves up the food chain. Animals higher up in the food chain accumulate the highest concentrations of mercury.

In Florida, bowfin, gar and largemouth bass are top level predatory fish that have accumulated the highest concentrations of mercury. As humans or animals consume mercury-laden fish, they absorb it into their bodies. Mercury can be eliminated, but the process is slow, and if the amount of mercury entering the body exceeds the amount being eliminated, it will accumulate.

The Effects of Mercury Poisoning

Fish consumption is by far the greatest cause of mercury ingestion by the general public. Although mercury levels found in Florida fish are not high enough to cause acute illness, frequent consumption of contaminated fish could result in dangerous health consequences. Toxic side effects of mercury differ among individuals, depending primarily on the amount consumed.

Central nervous system disturbances including irritability, tremors, speech impediments and loss of coordination have been observed due to mercury ingestion. Unborn and very young children are most susceptible because of the sensitivity of their developing systems. Birth defects such as deafness, blindness or cerebral palsy can result from fetal ▷

DAVE MAEHR

High levels of mercury have been found in several Florida panthers that roamed the Everglades.

in Florida's Fish and Wildlife

exposure to mercury. Unborn children are sensitive to concentrations five to 10 times lower than those causing adverse effects in adults.

Fish do not seem to be affected by the levels of mercury currently found. Nevertheless, even low concentrations could be harmful to humans, although no toxic effects have been observed in humans in Florida thus far. Elsewhere in the world, there have been cases of heavy industrial pollution in which fish contained toxic levels of mercury. In Minamata Bay, Japan, more than 1,800 people were poisoned and at least 41 deaths were attributed to regular consumption of contaminated fish and shellfish from the polluted bay.

Now, mercury contamination reaches beyond the aquatic environment to other predators in the Everglades. Mercury poisoning was the suspected cause of the 1989 death of a Florida panther in the Everglades. Liver, hair and muscle tissue mercury concentrations were extremely high. Other panthers in the Everglades also have been found with elevated mercury concentrations in tissue, and the 1991 deaths of two other panthers are possibly a result of mercury toxicosis.

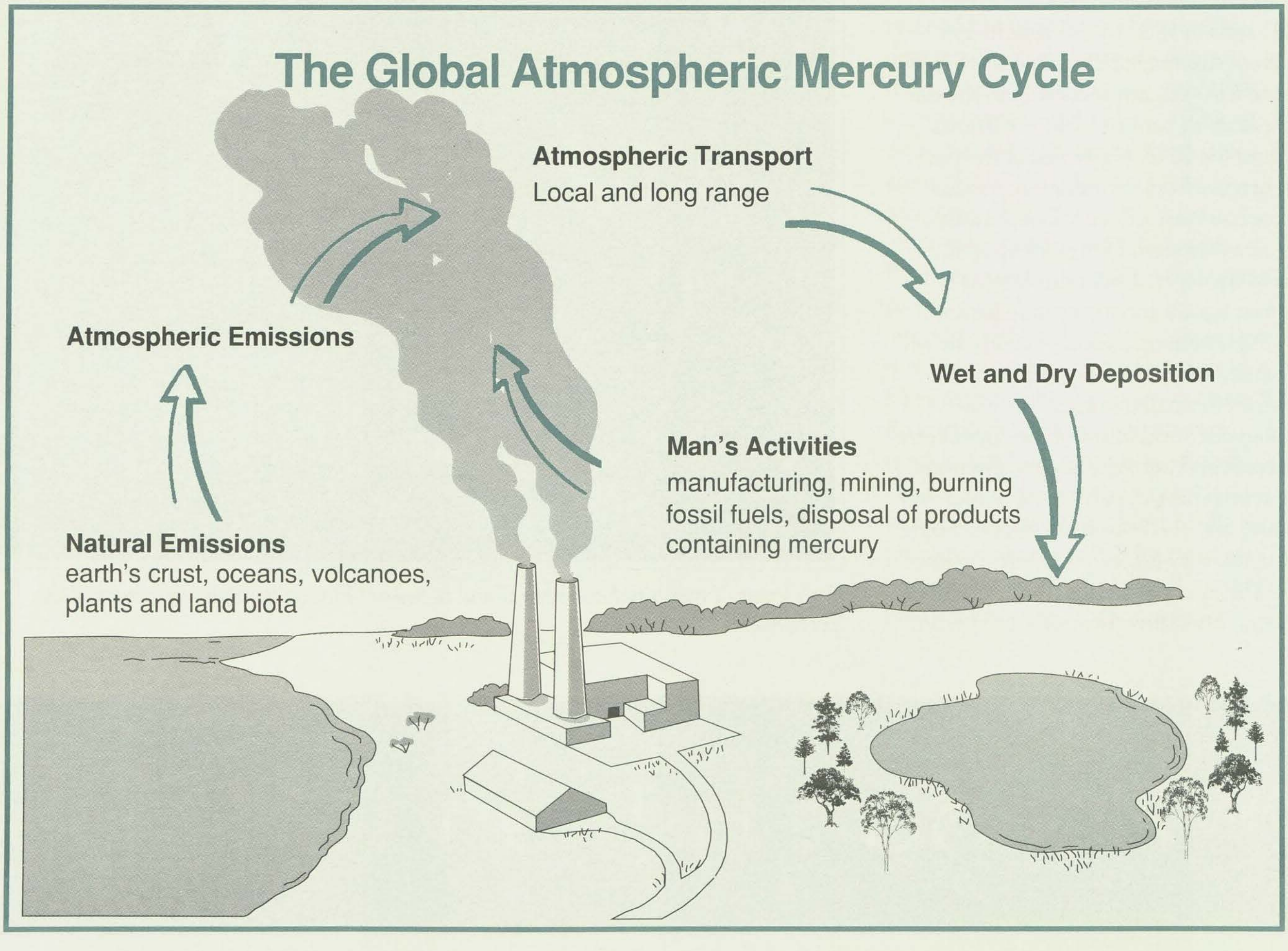
Panthers are top predators in the food chain, feeding on alligators and raccoons, which in turn feed on fish and other aquatic organisms. The affected panther lived in an area in which all of the fish sampled had high mercury concentrations. In contrast, hair and muscle samples from panthers living in areas where they feed primarily on deer and wild hogs, which are not tied to the aquatic food chain, were found to have low mercury concentrations.

Studying the Problem

Commission researchers have focused primarily on determining the range and extent of the contamination and the species affected. Elevated mercury concentrations have been found in largemouth bass, bowfin and gar. In a few waters, other species of fish, including bluegill, oscar, Suwannee bass, warmouth, snook and yellow bullhead, have been found with elevated mercury levels. Research to determine how many water bodies and species are contaminated continues.

A recent study investigated mercury accumulation in juvenile largemouth bass indicating that bass from Lake Tohopekaliga showed a steady increase in mercury concentration from eggs through two years of growth. Instead of using selected tissue samples, scientists ground up and freeze-dried whole largemouth bass for study. Changes in diet from zooplankton to insects and fish did not affect the rate of mercury accumulation. The older and larger the fish, the greater the mercury content.

Long-term monitoring of mercury levels in bass populations is underway at four locations in the state. This study has


The Global Atmospheric Mercury Cycle
Atmospheric Transport
Local and long range
Atmospheric Emissions
Wet and Dry Deposition
Man's Activities
manufacturing, mining, burning fossil fuels, disposal of products containing mercury
Natural Emissions
earth's crust, oceans, volcanoes, plants and land biota

revealed little change in four years of study. In addition, no seasonal differences in mercury concentrations were observed in bass from the Suwannee River.

Scientists recently completed a study to determine the effects of physical and chemical lake characteristics on fish mercury concentrations. Largemouth bass were compared among 53 lakes to determine the effects of water chemistry on mercury concentrations in fish. These lakes represent a broad range of physical and chemical characteristics. This was done because lakes in Florida are extremely variable with respect to pH, color, hardness, phytoplankton (algae) productivity, nutrients, minerals and size.

Mercury concentrations in largemouth bass increased as pH, minerals, nutrients and phytoplankton decreased. Lakes with low pH and low phytoplankton productivity had the highest mercury concentrations in fish.

Lake Griffin is highly enriched, resulting in high pH and high phytoplankton concentrations. Mercury concentrations are low among fish of all sizes in Lake Griffin. Mercury accumulates at a very slow rate in Lake Griffin's fish due to its chemical characteristics and a very diverse food chain, which does not allow efficient movement of mercury into higher organisms.

Fish in East Lake Tohopekaliga accumulate mercury at a much faster rate and to higher concentrations than Lake Griffin's fish. East Lake Toho has a lower pH and is much less productive, resulting in lower phytoplankton concentrations. These two chemical characteristics and a much less diverse food chain in East Lake Tohopekaliga allow more mercury to accumulate in higher level organisms such as largemouth bass.

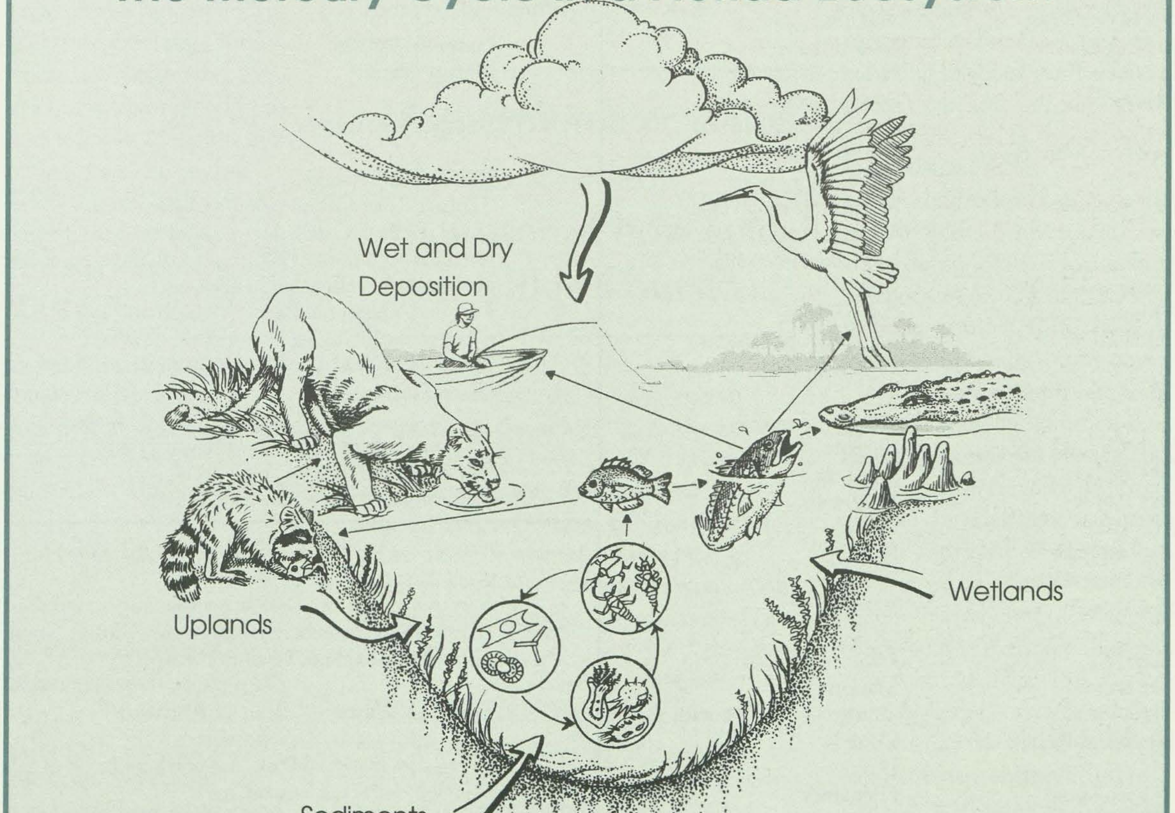
In waters throughout the state we found that mercury increases consistently with age and size in largemouth bass. The longer a fish is exposed to the environment, the higher the mercury concentration.

The Commission and other state and federal agencies are working to determine all possible sources of mercury to the atmosphere and waters and the range and extent of the contamination in Florida. A network of air monitoring stations is being built to measure the actual amount and chemical forms of mercury falling to the ground in Florida. This study also will use wind trajectories to determine likely sources of the mercury. Sediments are being analyzed in south Florida to determine and compare mercury accumulation rates before the Industrial Revolution to those in more recent times.

Although expensive and time consuming, these and other investigations are important in helping scientists mitigate the problem and possibly reduce mercury concentrations in the aquatic food chain. ▷

Homer Royals and Ted Lange are chemists at the Commission's Fisheries Research Laboratory in Eustis.

The Mercury Cycle in a Florida Ecosystem



The Florida Department of Health and Rehabilitative Services, Department of Environmental Regulation and Game and Fresh Water Fish Commission have announced health advisories urging limited or no consumption of largemouth bass and other species from a number of waters in Florida. The advisories stem from field and laboratory investigations completed over the past four years. The waters listed in the first table contain largemouth bass and other species with average mercury levels above 0.5 ppm. Adults should limit their consumption of fish from these waters to one meal per week. Children, nursing women and pregnant women should limit theirs to one meal per month.

Body of Water	**Location (County)**
Rivers	
Anclote River	Pasco/Pinellas
Blackwater River	Santa Rosa
Choctawhatchee River	Holmes/Walton/Washington
Crooked River	Franklin
Apalachicola River Drainage	
Chipola River	Jackson/Calhoun
Dead Lakes	Calhoun/Gulf
Equaloxic Creek	Liberty
Sweetwater Creek	Liberty
Econfina Creek	Bay
Econlockhatchee River	Orange/Seminole
Escambia River	Escambia
Hillsborough River	Hillsborough
Holmes Creek	Washington
Ochlockonee River	Leon/Wakulla
Oklawaha River	Marion
Peace River	Polk/Hardee/DeSoto
Perdido River	Escambia
Santa Fe River	Alachua/Bradford
Sopchoppy River	Wakulla
St. Mary's River	Nassau/Baker
Suwannee River and tributaries	Hamilton/Columbia/Suwannee/Madison/Dixie/Levy/Gilchrist
Upper St. Johns River	S.R. 415 bridge near Sanford north, upstream through lakes Harney, Puzzle, Sawgrass and Lake Helen Blazes
Wacassassa River	Levy
Withlacoochee River	Pasco/Citrus
Yellow River	Santa Rosa/Okaloosa
Lakes and Ponds	
Alligator Lake	Osceola
Lake Altho	Alachua
Lake Annie	Highlands
Brick Lake	Osceola
Crooked Lake	Polk
Deer Point Lake	Bay
Lake Dias	Volusia
Lake Down	Orange
Lake Dorr	Lake
Lake Eaton	Marion
Lake Hart	Orange
Lake Hatchineha	Osceola
Lake Iamonia	Leon
Lake Istokpoga	Highlands
Lake Josephine	Highlands
Lake Kerr	Marion
Lakes and Ponds (continued)	
Lake Kissimmee	Osceola
Lake Louisa	Lake
Lake Miccosukee	Jefferson
Mill Dam Lake	Marion
Ocean Pond	Baker
Ocheesee Pond	Jackson
Lake Placid	Highlands
Savannas State Preserve	St. Lucie
Swim Pond	Marion
Lake Talquin	Gadsden
Lake Tarpon	Pinellas
East Lake Tohopekaliga	Osceola
Lake Tohopekaliga	Osceola
Fish Management Areas	
Caloosa Park	Palm Beach
Okeeheelee	Palm Beach
Plantation Heritage Park	Broward
Tropical Park	Dade
National Wildlife Refuges	
Lower Suwannee	Levy
Merritt Island	Brevard
Everglades Area	
Big Cypress Preserve	
Turner River Canal	Collier
L-28 Tieback Canal	Collier
Everglades National Park (warmouth, yellow bullhead, oscar)	north and west of S.R. 27
Everglades National Park (largemouth bass, gar, warmouth, bowfin)	south and east of S.R. 27
Holey Land WMA	Palm Beach
Water Cons. Area 1 (largemouth bass, gar, bowfin, warmouth)	Loxahatchee National Wildlife Refuge
Water Cons. Areas 2a and 3 (warmouth, yellow bullhead, oscar)	

No-Consumption Advisory

Fish in the waters listed below contain largemouth bass and other species with average mercury levels exceeding 1.5 ppm. Fish from these waters should not be consumed.

Body of Water	**Location**
Everglades National Park (largemouth bass, bowfin, gar)	north and west of S.R. 27
Water Cons. Areas 2a and 3 (largemouth bass, gar)	

Wind Chill Factor

Makes It Colder Than You Think

By Tom and Joanne O'Toole

Some Floridians feel cold weather is invigorating, while others think it's downright insufferable. It might have something to do with our blood, or maybe our age. Perhaps even the wind chill factor. The *what*?

The wind chill factor is essentially the relative cooling effect that wind and temperature have on the human body. Wind moving past exposed skin during cold weather increases the body's heat loss. The heart pumps warm blood to the extremities in an attempt to maintain the proper body temperature. But if the temperature is low and the wind strong, the body may not be able to keep up with heat loss, and the skin temperature decreases. While the usual effect of wind chill is just plain discomfort, actual freezing of exposed body parts can result.

A thermometer is not always a reliable indicator of how cold you will feel when outside, because there are other determinations, such as wind speed, relative humidity and sunshine. Your health and metabolism, along with the type of clothing worn, also will affect how cold you feel.

A scientific definition of this elusive weather characteristic was first put forth by Antarctic explorer Paul A. Siple and his colleague Charles F. Passel in 1939. Siple coined the term "wind chill" to describe the concept of how wind speed and low temperatures combine to chill the human body.

On a calm day (no wind) with a temperature of 40 degrees, the temperature as it relates to the body is also 40 degrees. But when the wind starts blowing, the temperature affecting exposed skin drops dramatically. If the wind is a relatively slow 10 mph, the wind chill factor is 28 degrees. If it's blowing at 15 mph, the wind chill drops to 22 degrees.

A thermometer is not always a reliable indicator of how cold you will feel outside.

The stronger the wind at a given temperature, the colder the wind chill. It's the relationship between wind speed and actual temperature that produces the chilling effect. Outdoor enthusiasts who create their own wind or increase the existing wind -- by speedwalking, running or biking for example -- should take extra precautions.

When air movement evaporates moisture from exposed skin, it lowers the body's temperature. This feels great in summer, because it has a cooling effect on an over-heated person. That's why we enjoy being near a fan. But in winter we would describe the same effect as a "penetrating wind." This can have serious consequences during cold weather when hunters, fishermen, backpackers and others need to retain as much heat as possible.

Physical exertion increases body heat. Perspiration is our body's way of cooling itself through vaporization. We also lose body heat by touching a cold surface or by breathing cold air, which cools the lungs. So the wind chill chart doesn't take into account all the possibilities of heat loss, or the preventive measures against it.

A sudden rain can make temperatures drop sharply. If you are caught off-guard during a fall or winter downpour and get soaked, it's important to change into dry, warm clothing as soon as possible, especially during cool weather.

Did you know that smoking, drinking, some prescription drugs and illegal narcotics can present added dangers in wind chill conditions? Not only do they dull your sensitivity to the circumstances, they also have physical effects that will make you more susceptible to hypothermia -- the rapid lowering of the body's internal temperature.

Alcohol dilates the skin's capillaries, increasing the body's heat loss. Nicotine is absorbed by the blood, causing the capillaries to constrict, thus restricting the blood flow to earlobes, fingertips and other extremities. Certain prescription medications can have similar side effects, ▷

which might mean you shouldn't venture outside during extraordinary weather.

The concept of wind chill is easy to understand. Knowing the additional risk factors involved can help you guard against hypothermia, which greatly affects judgement and can even result in death. Some of its more obvious symptoms are violent shivering, slurred speech, exhaustion, drowsiness and disorientation.

Hypothermia is sneaky, gradually overcoming a person who has been chilled by wet clothing, low temperatures or brisk winds. The important thing to remember is that temperatures do not have to drop below freezing for hypothermia to occur.

Wind chill charts are usually available wherever outdoor equipment is sold. To give you a better regard for just how cold cold can be, look at the figures on the chart below.

Floridians who visit the northern states or Canada between late fall and early spring should be especially aware of wind chill and hypothermia, and know the early symptoms. At the same time, Florida's fluctuating winter temperatures offer the possibility of wind chill conditions. It's possible to feel the consequences almost anywhere in Florida – particularly because residents are used to normally warmer temperatures.

When you venture out this winter, dress for both the weather and the wind by wearing several layers of loose-fitting, lightweight, warm clothing you can remove to prevent perspiration and subsequent chilling.

Now when ole Jack Frost comes a-nippin' at your ears and nose here in the Sunshine State, you'll be ready to fight back.

Tom and Joanne O'Toole are free-lance writers from Willoughby, Ohio.

WIND CHILL CHART

Wind Speed in mph	**Equivalent Wind Chill Temperatures at Actual Temperature Readings (F)**									
	50	40	30	20	10	0	-10	-20	-30	-40
calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	41	28	16	3	-9	-22	-34	-46	-58	-71
15	36	22	9	-5	-18	-31	-45	-58	-72	-85
20	33	18	4	-10	-24	-39	-53	-67	-81	-95
25	30	15	1	-15	-29	-44	-59	-74	-88	-103
30	28	13	-2	-18	-33	-49	-64	-79	-93	-109
35	27	12	-4	-20	-35	-52	-67	-82	-97	-113
40	26	10	-5	-21	-37	-53	-69	-84	-100	-115
Over 40 mph (little added effect)	**Little danger (for properly clothed person)**				**Increasing danger**			**Great danger**		
					Danger from freezing of exposed flesh					

Hypothermia

The Silent Killer

By Roger Meyer

Have you ever shivered uncontrollably or found it difficult to talk properly in cold weather? Ever have problems walking because you were so cold? If so, you could have been on the verge of becoming a victim of hypothermia.

Hypothermia is the total physical and mental collapse that occurs when the vital organs of the human body are chilled. A victim of hypothermia will die unless someone helps them.

The weather doesn't have to be very cold to cause problems. Most hypothermia cases occur between 32 and 50 degrees. Few outdoorsmen believe that these relatively mild temperatures can start trouble. Don't take hypothermia lightly – it can kill you.

Body temperature starts to drop when body heat is lost faster than it's replaced. When the temperature of the vital organs, often called the core temperature, drops to 97 degrees, shivering begins and becomes more violent if it continues to drop. Shivering consumes a lot of energy, about as much as it takes to saw wood. Shivering delays hypothermia, but you must do something to reduce the heat loss from your body before your energy reserves are depleted.

At about 92 degrees core temperature, shivering stops and muscles become rigid. Victims usually are irrational, unable to speak and incapable of helping themselves at this point. They then need assistance to survive.

As the core temperature drops further, the victim enters a stupor and then loses consciousness. At this point, simple external warming will not correct the problem, because the core temperature will continue to drop even after external heat is applied. Professional medical help and equipment is required for the victim to survive. One method medics use is to have the victim breathe steam, which quickly heats the heart and lungs. Without medical intervention, core temperature can continue to drop to 78 degrees, at which point death occurs.

> When body heat is lost faster than it's replaced, body temperature starts to drop and hypothermia can set in quickly.

It takes only a few minutes for hypothermia to set in. Incapacitating, violent shivering can begin immediately after exposure to extreme cold. Falling into water can trigger it. If this happens, and you don't have a dry change of clothes, strip off what you're wearing and wring out as much water as possible before dressing again. Then find shelter quickly.

Wet clothing greatly increases heat loss because it has lost its insulating qualities. You don't have to fall into water to get your clothes wet. Rain or perspiration can do the same thing, only more slowly. Boaters should be especially careful about getting wet in cold weather. Many boating-related drownings occur when hypothermia renders the victim unable to swim, so it's especially important for boaters to wear a personal flotation device in winter.

Hypothermia is easy to detect in someone else; it's very difficult to recognize in yourself. Hypothermia quickly impairs mental capabilities and makes a victim lethargic. A cold body temperature strips you of sound judgement and reasoning power, and you are unaware of the change. A victim quickly loses the mental and physical capability to help himself. If you are alone, you must be alert to the early warning signals.

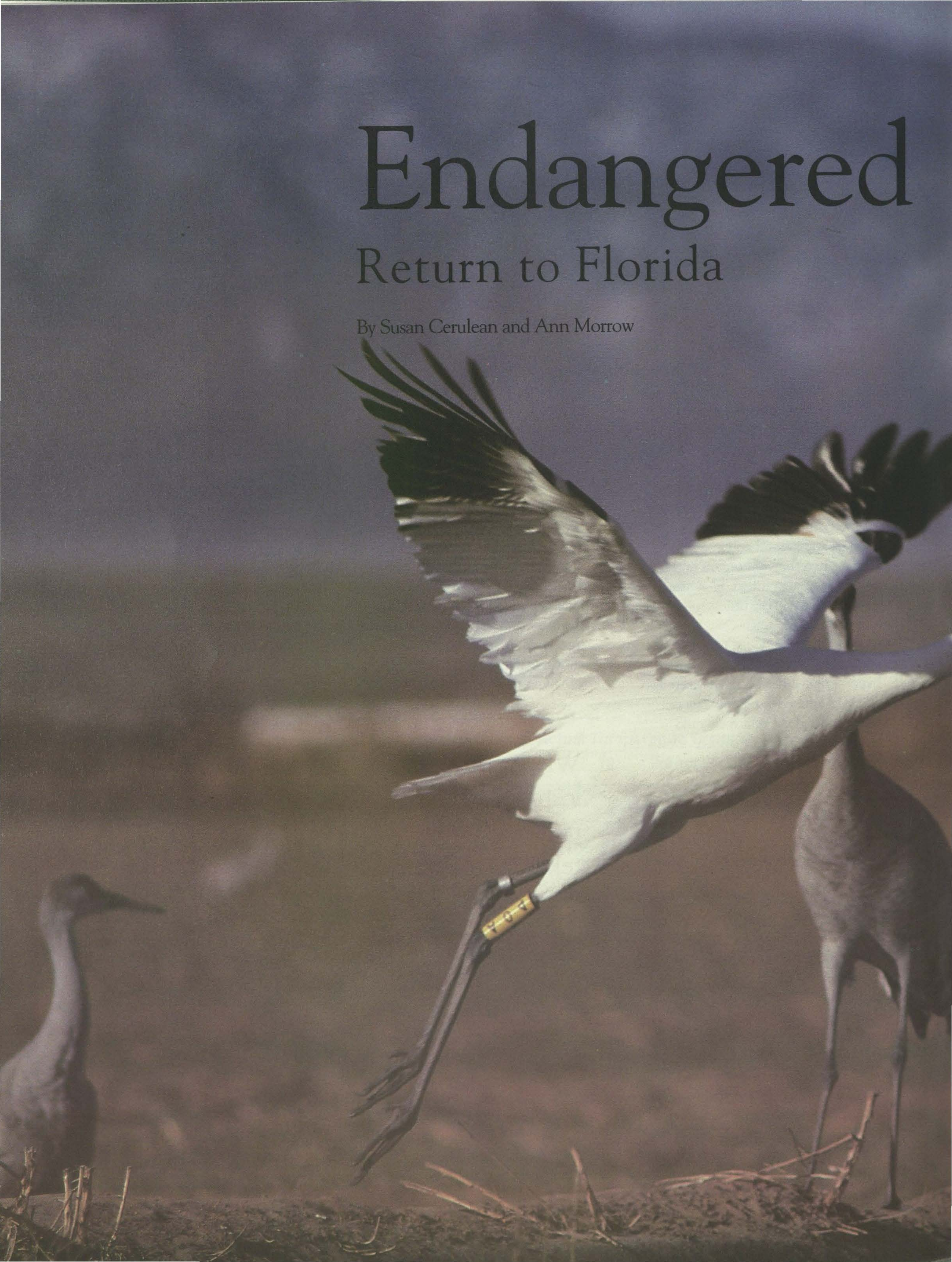
To avoid or counteract hypothermia: get out of the cold to a warm or sheltered spot, reduce heat loss by using more clothing or other covering, exercise to increase heat production, or eat food to increase your internal heat generation.

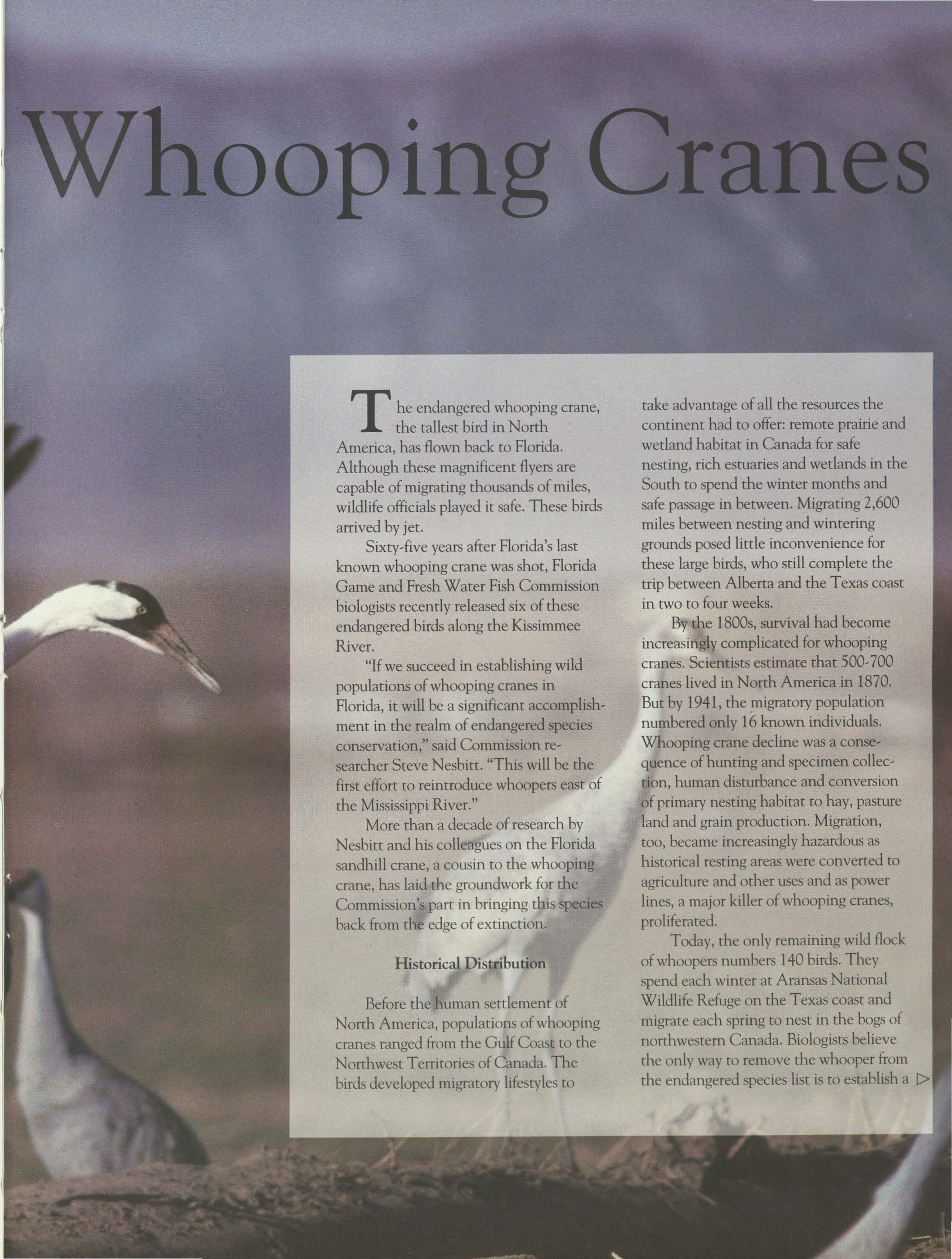
Free-lance writer Roger Meyer knows about cold weather because he lives in Grand Rapids, Mich.

Endangered

Return to Florida

By Susan Cerulean and Ann Morrow





Whooping Cranes

The endangered whooping crane, the tallest bird in North America, has flown back to Florida. Although these magnificent flyers are capable of migrating thousands of miles, wildlife officials played it safe. These birds arrived by jet.

Sixty-five years after Florida's last known whooping crane was shot, Florida Game and Fresh Water Fish Commission biologists recently released six of these endangered birds along the Kissimmee River.

"If we succeed in establishing wild populations of whooping cranes in Florida, it will be a significant accomplishment in the realm of endangered species conservation," said Commission researcher Steve Nesbitt. "This will be the first effort to reintroduce whoopers east of the Mississippi River."

More than a decade of research by Nesbitt and his colleagues on the Florida sandhill crane, a cousin to the whooping crane, has laid the groundwork for the Commission's part in bringing this species back from the edge of extinction.

Historical Distribution

Before the human settlement of North America, populations of whooping cranes ranged from the Gulf Coast to the Northwest Territories of Canada. The birds developed migratory lifestyles to take advantage of all the resources the continent had to offer: remote prairie and wetland habitat in Canada for safe nesting, rich estuaries and wetlands in the South to spend the winter months and safe passage in between. Migrating 2,600 miles between nesting and wintering grounds posed little inconvenience for these large birds, who still complete the trip between Alberta and the Texas coast in two to four weeks.

By the 1800s, survival had become increasingly complicated for whooping cranes. Scientists estimate that 500-700 cranes lived in North America in 1870. But by 1941, the migratory population numbered only 16 known individuals. Whooping crane decline was a consequence of hunting and specimen collection, human disturbance and conversion of primary nesting habitat to hay, pasture land and grain production. Migration, too, became increasingly hazardous as historical resting areas were converted to agriculture and other uses and as power lines, a major killer of whooping cranes, proliferated.

Today, the only remaining wild flock of whoopers numbers 140 birds. They spend each winter at Aransas National Wildlife Refuge on the Texas coast and migrate each spring to nest in the bogs of northwestern Canada. Biologists believe the only way to remove the whooper from the endangered species list is to establish a ▷

PAGE 10,11 AND 12 PHOTOS BY ROD DREWIEN

A juvenile whooper flies with sandhill cranes at Bosque del Apache National Wildlife Refuge in New Mexico.

minimum of two other stable wild populations, containing at least 25 nesting pairs each, at other North American sites.

Florida Chosen as Reintroduction Site

The Whooping Crane Recovery Plan, published in 1980, outlines how to "downlist" the bird from its present endangered status to a less precarious "threatened" classification. Key to the plan has been the efforts of the U.S. Fish and Wildlife Service (USFWS), the Canadian Wildlife Service and the International Crane Foundation (ICF), of Baraboo, Wis.

In 1980, researchers implementing the Whooping Crane Recovery Plan asked Florida officials to investigate the state's potential for whooper reintroduction. Part of the project focused on the likelihood of developing a non-migratory population of whooping crane stock, although it would have to be established from the existing population, which migrated great distances twice each year.

The Three Lakes Wildlife Management Area, about 75 miles northwest of Vero Beach in south central Florida, was selected as home for the second wild flock of North American whoopers. The newly created Florida flock will not migrate each year, but likely will remain in the Kissimmee Prairie region year round.

"Studies of whooping cranes have shown that migration is primarily a learned behavior," Nesbitt explained. "We expect these captive-reared birds will remain a non-migratory population because they will not learn or need to migrate." Such a population will have a greater chance of success, because the birds will not face the hazards of traveling great distances twice each year. Moreover, the non-migratory cranes will live in a more geographically limited area, which will increase the chances of finding a mate.

Biologists have high hopes for the Florida reintroduction project, despite an inconclusive attempt to establish a second flock of wild whoopers that would nest in southeastern Idaho and spend their winters in New Mexico.

"The project at Idaho's Grays Lake National Wildlife Refuge is compromised because of two things," Nesbitt said. "Too many birds were lost during their long, semi-annual migrations, and the birds failed to mate."

The Idaho project, begun in 1975, used sandhill cranes as foster parents for whooper chicks to teach them traditional migration routes. But more than half of the chicks were lost during migration, and natural breeding has not occurred among the whoopers. Researchers speculate that natural breeding has been hindered because of the scarcity of whoopers and possibly because they may have imprinted on their sandhill foster parents, not recognizing other whoopers as potential mates.

"We believe there's a great chance we'll succeed with reintroduction in Florida," Nesbitt explained. "We've learned a lot from the Idaho experiment, and we've done more than 10 years of research here to figure out the best way to prepare the young whoopers for life on their own."

Nesbitt and his colleagues found Florida the perfect laboratory to study responses of cranes to population management. Two subspecies of sandhill cranes, close relatives of whoopers, live in our state. A resident, non-migratory population of Florida sandhill cranes numbering approximately 5,000 birds is joined every winter by 25,000 migratory sandhill cranes from the Great Lakes region. Both subspecies occur on Payne's Prairie and Kanapaha Prairie in Alachua County, near the Commission's Wildlife Research Laboratory in Gainesville. There, over a 10-year period, Commission biologists explored questions such as "What happens to a migratory species foster-reared by a non-migratory species?" They also investigated whether cranes can be expected to remain non-migratory ▷

STEVE NESBITT

Above, greater sandhill crane eggs are transferred into nests of Florida sandhill cranes.

A two-day-old whooper chick at Grays Lake, Idaho.

ROD DREWIEN

ROD DREWIEN

A lone whooper stands out among sandhill cranes.

if they do not experience migration (yes); what introduction technique might be most successful ("soft release," the freeing of captive-reared birds, seemed best); and what diseases or environmental stresses might affect whooping cranes in Florida (Eastern equine encephalitis is a possibility).

The Kissimmee Prairie whoopers will start life in Florida through soft release. At first, the birds will live together in conditioning pens -- 400-by-100-foot, open-topped enclosures that allow them to adjust gradually to their new surroundings. Harness-like wing restraints will restrict the birds' flight temporarily. Six weeks later, the birds will have their restraints removed and be fitted with leg-band-mounted radio-telemetry transmitters. The birds will fly from their pen as soon as they discover they can. Commission biologists will track the birds closely for two years to study their movements, habitat use and other behaviors. If all goes well, about 20 birds a year will be released over the next 10 years. Eventually, biologists hope for 25 breeding pairs in Florida, 40 in the Texas population and 25 in a third group elsewhere.

The Florida flock will be made up of captive-reared birds from the USFWS Patuxent Wildlife Research Center in Laurel, Md. and the ICF. The birds awaiting reintroduction have been conditioned for release into the wild in isolation from humans.

Why Save the Whooping Crane?

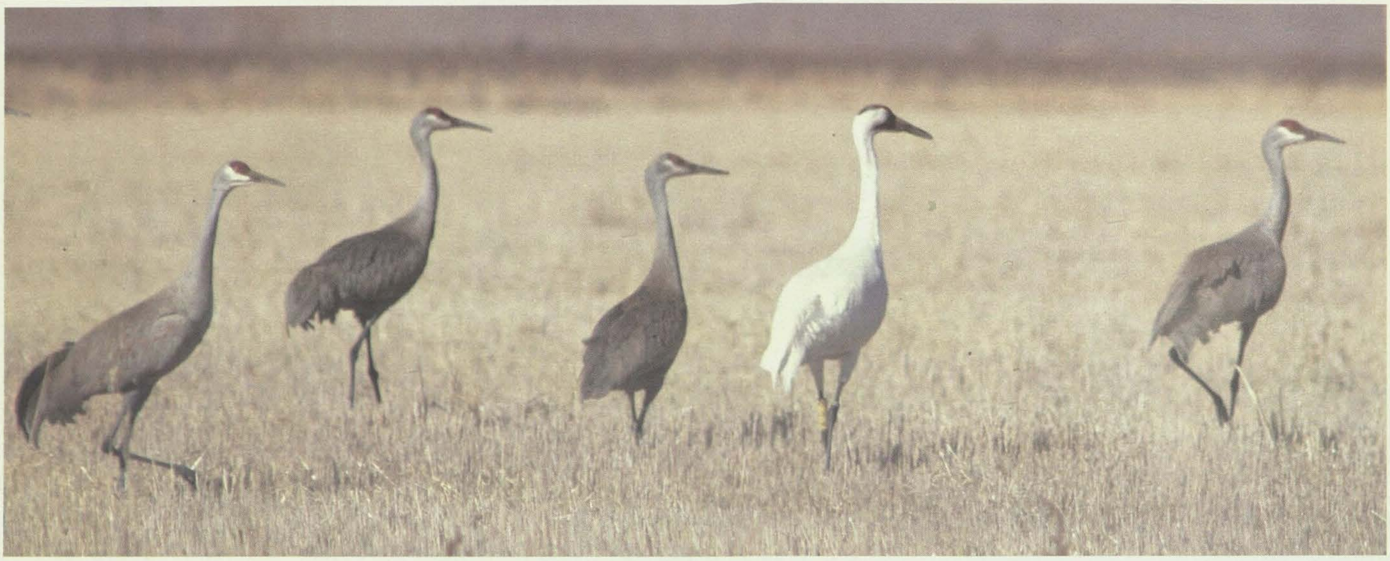
Cranes have long inspired the human imagination. Their elegant stature, their longevity and their complex mating and courtship behaviors have figured in the myths and folklore of many cultures. And in the modern world, the whooping crane is one of the few endangered species with significant economic value. Birders spend hundreds of thousands of dollars annually to view the cranes at wildlife refuges in Texas and New Mexico.

But perhaps Paul A. Johnsgard, author of *Crane Music*, summed up the reasons for whooping crane reintroduction best when he wrote, "Cranes are the stuff of magic, whose voices penetrate the atmosphere of the world's wilderness areas from the Arctic tundra to the South African veld, and whose footprints have been left on the wetlands of the world for the past 60 million years or more."

With any luck, this winter, whooping cranes will stalk once again through the marshes and prairies of Florida's Kissimmee Prairie.

Susan Cerulean and Ann Morrow are biologists and free-lance writers whose articles frequently appear in FLORIDA WILDLIFE.

ILLUSTRATION BY PEGGY PERKERSON

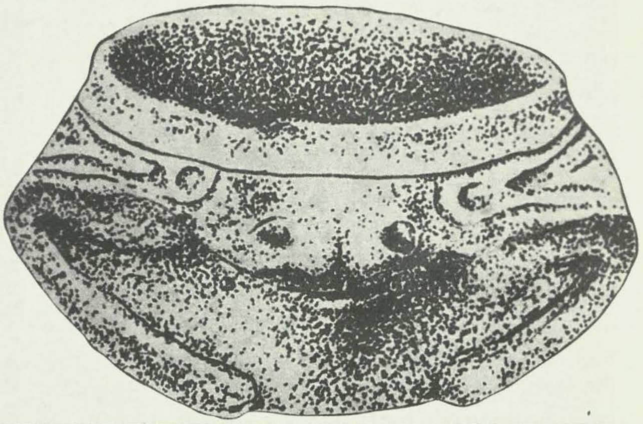


ROD BREWIEN

CRANE FACTS

	FLORIDA SANDHILL CRANE	WHOOPING CRANE
SIZE	Erect, just under 4 ft. tall; wing spread about 6 feet.	Erect, over 4 ft. tall; wing spread 7-8 feet.
WEIGHT	Males: 10 lbs. 5 oz., females: 9 lbs.	Males: 16 lbs., females: 14 lbs.
CLUTCH SIZE	Usually 2, rarely 3.	Usually 2, rarely 3.
INCUBATION PERIOD	29–31 days.	29–31 days.
BROOD SIZE	About 30% of the pairs raise 2 chicks.	Usually 1, rarely 2 chicks
YOUNG	Precocious, they will follow their parents away from the nest within 24 hours of hatching; first flight at 65–70 days; by 10 months of age their appearance is adult-like.	Capable of flight when 80–90 days old. Chicks are cinnamon brown; by 4 months of age emergence of white, adult-like feathers produces a mottled appearance. Yearlings achieve adult-looking plumage late in their second summer or fall.
AGE OF SEXUAL MATURITY	Earliest successful breeding at 3 years.	First fertile eggs produced at 4–7 years.
PAIR FORMATION	Begins as early as 14 months. Once a pair becomes established, they remain together for many years occupying the same territory. If one member dies, the surviving bird usually can quickly find a new mate.	Mate for life, but will take a new mate after loss of the original. The pair will return to use and defend the same nesting and wintering territory year after year.
LIFE EXPECTANCY	At least 25 years.	At least 22 years in the wild, perhaps to 40 years.

Fishing and Hunting in Prehistoric Florida



By Nancy Marie White

A loud splash follows the gleam of a jumping mullet — a huge osprey swoops low overhead as my crew and I glide slowly along the Apalachicola riverbank. The urban college kids in the boat marvel, and I must remind them to stay clear of the eroded banks where submerged logs could damage our craft.

We pass a couple of old-timers peacefully fishing in a shady spot. They greet us with questions about our luck, then notice that we have shovels and trowels, not fishing gear, in our little bass boat. We explain that we are archaeologists surveying the area for prehistoric sites. Before we can ask if they have ever found any projectile points, the man tells us of a nearby mound he remembers from childhood and the woman invites us to see their artifact collection. Thus we have combined the two best methods for field work: examining the land ourselves and learning about it from the people who know it best.

Anthropology is the study of humanity, and archaeology is the anthropology of the past, done by analyzing the material remains. A major focus of my investigation in the Apalachicola River Valley of northwest Florida is how Florida's prehistoric peoples made a living utilizing wild animals and plants, or later growing their own food. The local people who hunt and fish today are helpful, especially those who have shared their knowledge of the archaeological sites and artifacts they have found.

The Apalachicola Valley has abundant wild resources, good farmland and diverse natural environments, from steep ravines to low swamps. It is also rich in archaeological sites, from spectacular temple and burial mounds to humble campsites.

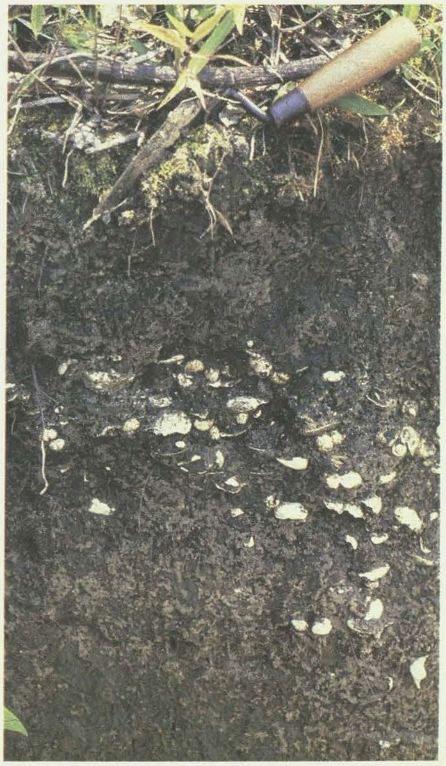
Archaeologists are interested in the sequences of different peoples and their artifacts, but even more so in reconstructing ancient lifeways to discover when, how and why things changed. One current issue is whether coastal natives ever developed corn (maize) agriculture as their neighbors upriver did some 1,000 years ago. So far, it looks like the swamps and estuarine wetlands were so rich in wild foods that the extra work of farming wasn't needed.

Shell mounds in Franklin and Gulf county estuaries have given us a good picture of the human diet here during the last 4,000 years. The piled shells made high, dry spots amid the swamps, and people camped on them frequently. Shells neutralize the soil's acidity and keep animal bones from rotting. Therefore, we can count the bone bits in these middens or garbage piles, identify the many species and figure the proportion of meat obtained from each animal.

Looking at a shell mound, you'd think these people ate nothing but clams ▷

The frog-shaped pot (above) was buried about 900 years ago on the riverbank near Chattahoochee.

Shell mounds neutralize the soil's acidity, keeping animal bones from rotting. These garbage middens provide a good picture of the diet of northwest Florida's early people.



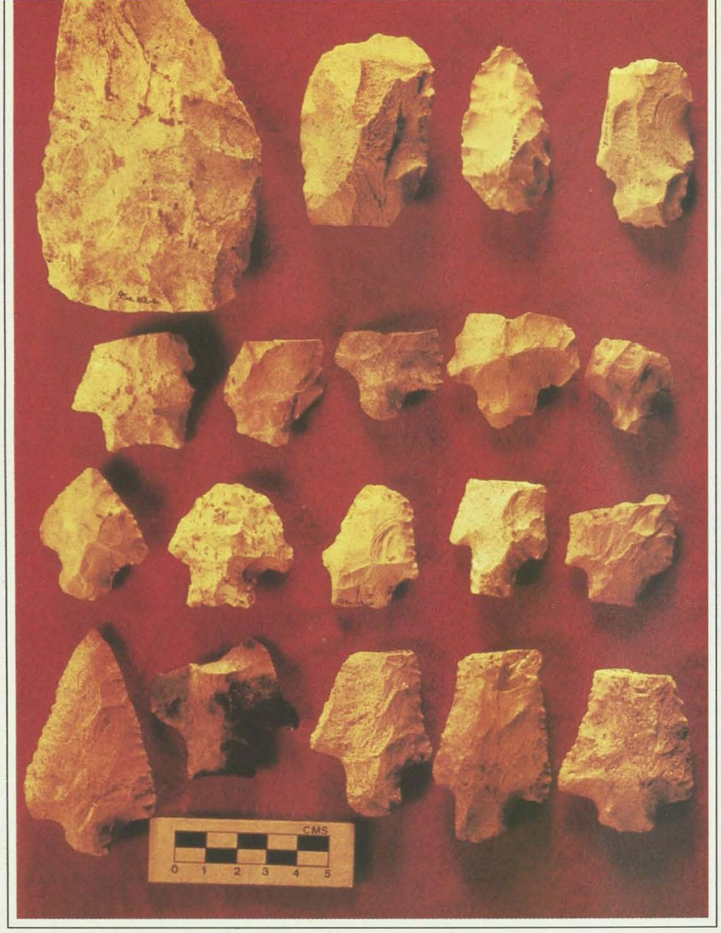
N.M. WHITE

and oysters. But shellfish actually provide very little food for the amount of waste. Inhabitants of the lower Apalachicola Valley wetlands and coastal areas fed primarily on fish — mainly drum, croaker, sheepshead and sea catfishes — and turtles — especially cooters, sliders, softshells and mud turtles. They supplemented their diet with deer, rabbits and other native animals. Wild hogs were not present until de Soto introduced them to the Southeast in the 1500s. At inland sites, deer, turkey and small game, rather than fish, seem to have comprised a greater portion of their diet. One site even produced a Florida panther tooth at least 1,000 years old, but we cannot prove whether the animal was eaten or obtained for its hide, claws and teeth.

A fish found in large numbers at both coastal and inland archaeological sites is the gar. Ugly and bony, gar are seldom kept today because they are so much trouble to clean. Nevertheless, prehistoric Indians probably took them often because they were easy to catch, especially by gigging. They may have thrown the whole fish into the stewpot to soften the bones and make the fish more edible. Similarly, they probably didn't shuck oysters and clams individually, but steamed or roasted open a bunch at a time, which is much less work. We can't yet comment about plant foods and spices, as plant remains are seldom preserved. So far, we've found burned hickory nut and acorn shells, indicating the importance of wild plants, even after a steady supply of cornbread was guaranteed through trade with inland agricultural areas.

The first people to come into the Florida panhandle, some 12,000 to 15,000 years ago, may have hunted Ice Age big game, although their primary diet consisted of small game, fish and wild plant foods. Though we have found fossil mammoth and mastodon teeth in the Apalachicola Valley, there is still no direct evidence that these people hunted. They probably were fishing and eating fruits and greens too, but the evidence disappeared long ago.

With the end of the Ice Age, glacier melting up north resulted in rising sea levels. Many coastal settlements of early inhabitants were abandoned and submerged by the slowly rising waters of the Gulf. Later peoples appear to have depended more on the estuarine and aquatic species that flourished in the enriched river floodplain as the climate became warmer and wetter. Likewise, reliance on dugout canoes probably increased, since water travel was much faster and more efficient than walking.



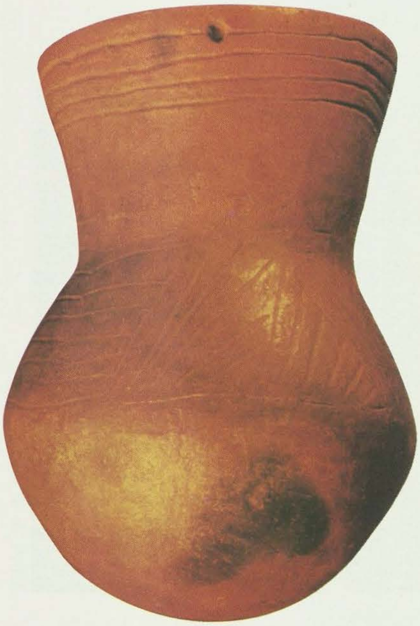
N.M. WHITE

Chipped stone (chert) artifacts 1,000-8,000 years old; top row are general cutting, chopping and scraping tools; the rest are spear points, some broken and reworked into scrapers for cleaning hides or working wood.

One of our long-range archaeological goals is to be able to see how the use of natural resources changed through time and from one environment to the next down the 107-mile length of the valley. For instance, archaeological data indicate that people on the east side of the lower valley, around East Bay, were collecting mostly oysters and saltwater fish some 4,000 years ago, then later shifted to marsh clams and freshwater fish. People on the west side, around Lake Wimico and the Jackson River, continually relied on freshwater species. We also determined that the river has been moving continually eastward over the centuries because of the oxbow lakes and sloughs — former segments of the river channel — on the west side, from Jackson to Gulf counties. Was the change in diet the result of changing river channels, sea levels or both? Was it a result of a natural disaster that damaged oyster beds, the barrier islands regulating the bay's salinity, and changing fish and shellfish communities? These and other questions remain to be answered.

There is much more work to do before we can be sure our reconstructions of the past are accurate. But we know far more now than even a decade ago, a lot of it thanks to intrepid students and volunteers who braved the steaming summer forest. Local residents graciously have shared information and allowed us to photograph their stone tools and pottery. They also have provided every conceivable assistance, from rescuing the crew when our vehicles broke down to inviting us to peanut boils and fish fries. Perhaps I most appreciate their willingness to allow us to look on their land, or to lead us through the thick of a mosquito-filled swamp to an archaeological site they might have found while hunting.

As scientists, we have an obligation



STEPHANIE BELOVICH

N.M. WHITE

The author and students begin a small excavation into a shell mound (above). A rare artifact to find nearly intact, the pot is perhaps 2,000 years old (left).

to make public the information we retrieve. Over the years we have held many local "archaeology day" programs, where archaeologists and area residents share information on the past. In 1991 a project sponsored by Blountstown's W.T. Neal Civic Center included scientific excavations at a riverbank camp inhabited 1,000-1,500 years ago. The public participated in the dig and attended an archaeology day with artifact and slide shows, Florida Creek Indian basketry, demonstrations of pottery making and chipping stone tools. They even sampled the "black drink," a tea made from yaupon holly leaves, used by Indians as a purifier.

We told participants how most of the stone points they collected were not arrowheads but spear points, since the bow and arrow was invented later. The area collectors' oldest points came from the Chipola River area. This big, western tributary of the Apalachicola was perhaps the main river channel when the first people arrived.

The most important goal of this public project was to emphasize the importance of preserving archaeological sites. These cultural resources, unlike biological resources, are non-renewable. Once an Indian camp or mound is looted, bulldozed or damaged by four-wheel-drive vehicles, its information about the past is gone forever. At our programs, we encouraged people not to dig into sites, and to record what they collect from the surface, writing on the bag where they found it and when, and to keep materials from different places labeled and separated. Some conscientious artifact collectors keep ziplock bags and waterproof markers with their hunting and fishing gear so that they can record the information before they forget the details. Ethical use of the outdoors also must include protecting the record of those who came before us.

As a result of our public project, we published a booklet for the people of the Apalachicola Valley. It explains both the knowledge of the ancient Indians that archaeologists have learned and the ways that all of us can preserve the source of that knowledge. Copies of "Apalachicola Valley Archaeology" are available from the director of the W.T. Neal Civic Center, P.O. Box 40, Blountstown, FL 32424 or the University of South Florida Anthropology Department, Tampa, FL 33620.

The preserved record of the prehistoric past, when investigated carefully and scientifically, can help answer questions about human effects upon the environment, and vice versa. For example, we currently are measuring sizes of oyster shells in shell mounds from different time periods, to see if over-harvesting or climate changes were taking place over the centuries. In the long run, we expect there will be much practical value in helping to conserve the record of the human past on the land we now inhabit and enjoy.

Nancy Marie White is an associate professor with the Department of Anthropology at the University of South Florida.

Collecting Artifacts: When, How and Where

By Louis D. Tesar

N. M. WHITE

Would-be artifact collectors need to be aware of federal and state laws relating to archaeological sites. The key to these laws is land ownership and whether the activity involves digging or surface collection of objects. Also, a very important factor is whether a human burial site is involved. But amateur archaeologists need not fear arrest if their past collecting would break today's laws. In fact, reporting of past discoveries -- regardless of the circumstances -- is encouraged.

Protecting Grave Sites

Florida law makes it a felony to willfully and knowingly dig up or remove unmarked human remains and associated grave relics, regardless of whether they occur on public or private property. Anyone who encounters human remains must cease all ground-disturbing activities and notify local law enforcement authorities of the discovery. They will report the find to the local medical examiner and may assist in determining whether a crime scene investigation is warranted and whether the remains are of recent origin (less than 75 years of interment). If the remains are unmarked and appear to have been interred more than 75 years, the Division of Historical Resources, Florida Department of State, may assume jurisdiction.

The Federal Archaeological Resources Protection Act provides stiff penalties to violators, including confiscation of vehicles and equipment used on federal property. The Native American Graves Protection and Repatriation Act affords additional protection to burial sites and objects. To avoid the risk of arrest and prosecution, as well as out of respect for sacred burial grounds, it is advisable not to dig at known or suspected burial sites.

Digging On Public Lands

On federal lands, the planned and systematic search for artifacts, especially excavation for such artifacts, may occur only with written permission from the involved federal agency. The incidental collecting of surface-exposed objects, while not encouraged, is permitted on occasion. Federal agencies recently have increased their efforts to prevent site damage and resource loss by arresting and prosecuting violators.

On state-owned property or submerged lands, Florida's Historical Resources Act assigns title of archaeological sites, shipwrecks and associated artifacts to the Division of Historical Resources (DHR). Individuals receiving research permits from DHR acknowledge the public ownership of the artifacts and commit to their proper analysis, curation and reporting. Individuals conducting investigations also must obtain the permission of state land managers and comply with their rules and policies, as well as obtain appropriate environmental permits.

Private Property

The least restricted places, and those for which permission is easiest to obtain (except in cases of human burial sites or when wetlands are involved) are located on private property.

Although it is not legally required, it is best to explore archaeological sites in ways that conserve and protect the information and artifacts they contain. Talk to an archaeologist about your knowledge of sites and your plans to be on such sites.

For specific information, refer to Rules 1A-32, 1A-44, 1A-45 and 1A-46, Florida Administrative Code; Chapters 267 and 872, Florida Statutes; the Archaeological Resources Protection Act (Public Law 96-96 as amended; 16 U.S.C. 470aa-470mm); and the Native American Graves Protection and Repatriation Act (Public Law 101-601; 25 U.S.C. 3001-3013).

Louis D. Tesar is an archaeology supervisor with the Division of Historical Resources, Department of State.

Hurricane Andrew

Aftermath in Photos

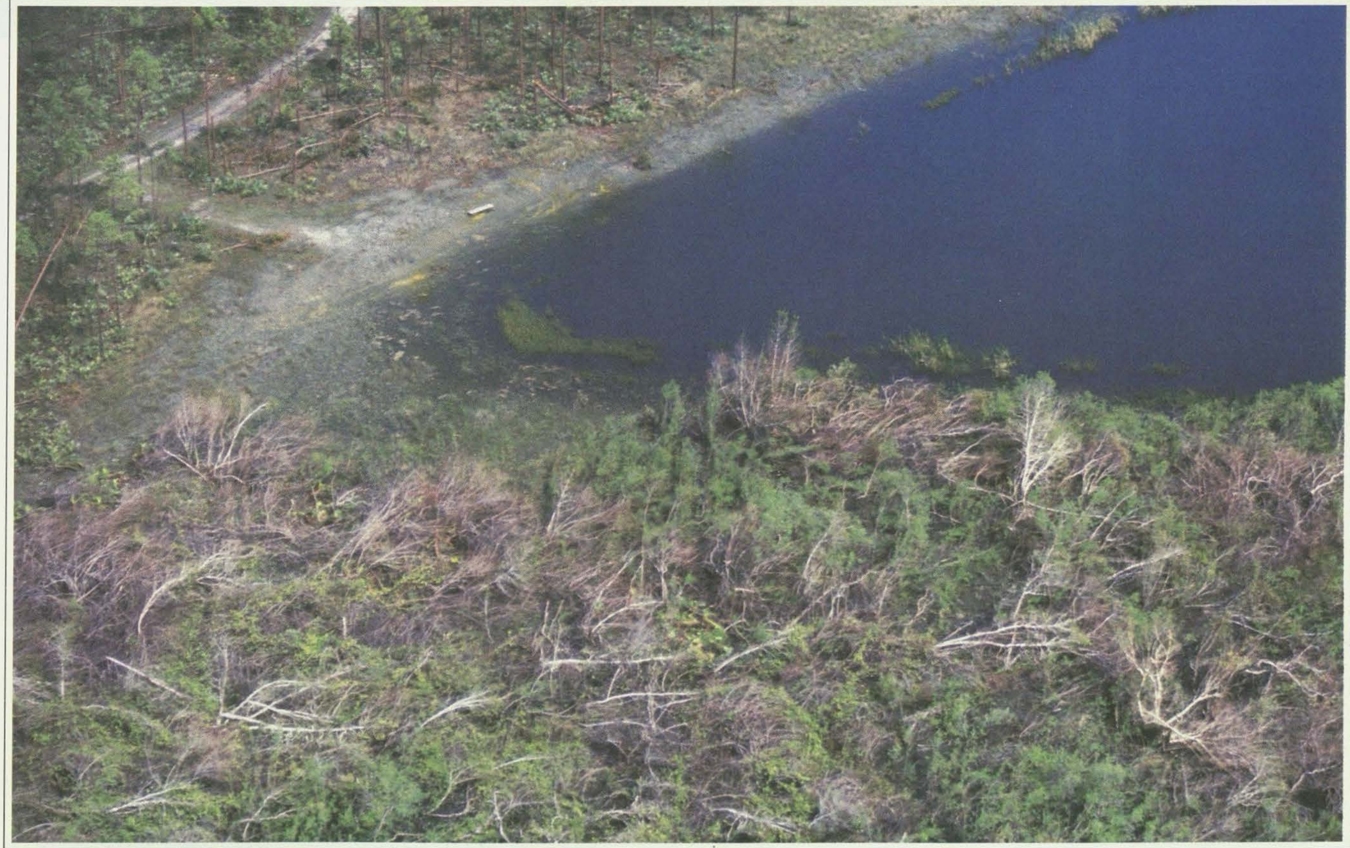
In the weeks and months following Hurricane Andrew's assault on south Florida, much has been said and written about the devastation created in just a few hours time, so there's little need for more words here.

The storm leveled thousands of homes and businesses, disrupting the lives of south Floridians. The storm also wreaked havoc upon the environment — knocking down trees, uprooting mangroves and flattening a wide path of saw grass across the Everglades. But wildlife are adaptable to the forces of Nature. Commission biologists surveying the area reported that most critters were able to ride out the storm.

Just as south Floridians began rebuilding their homes, businesses and lives shortly after the winds subsided, Nature began its own healing process. After all, the ecology of south Florida has survived and evolved through thousands of hurricane seasons.

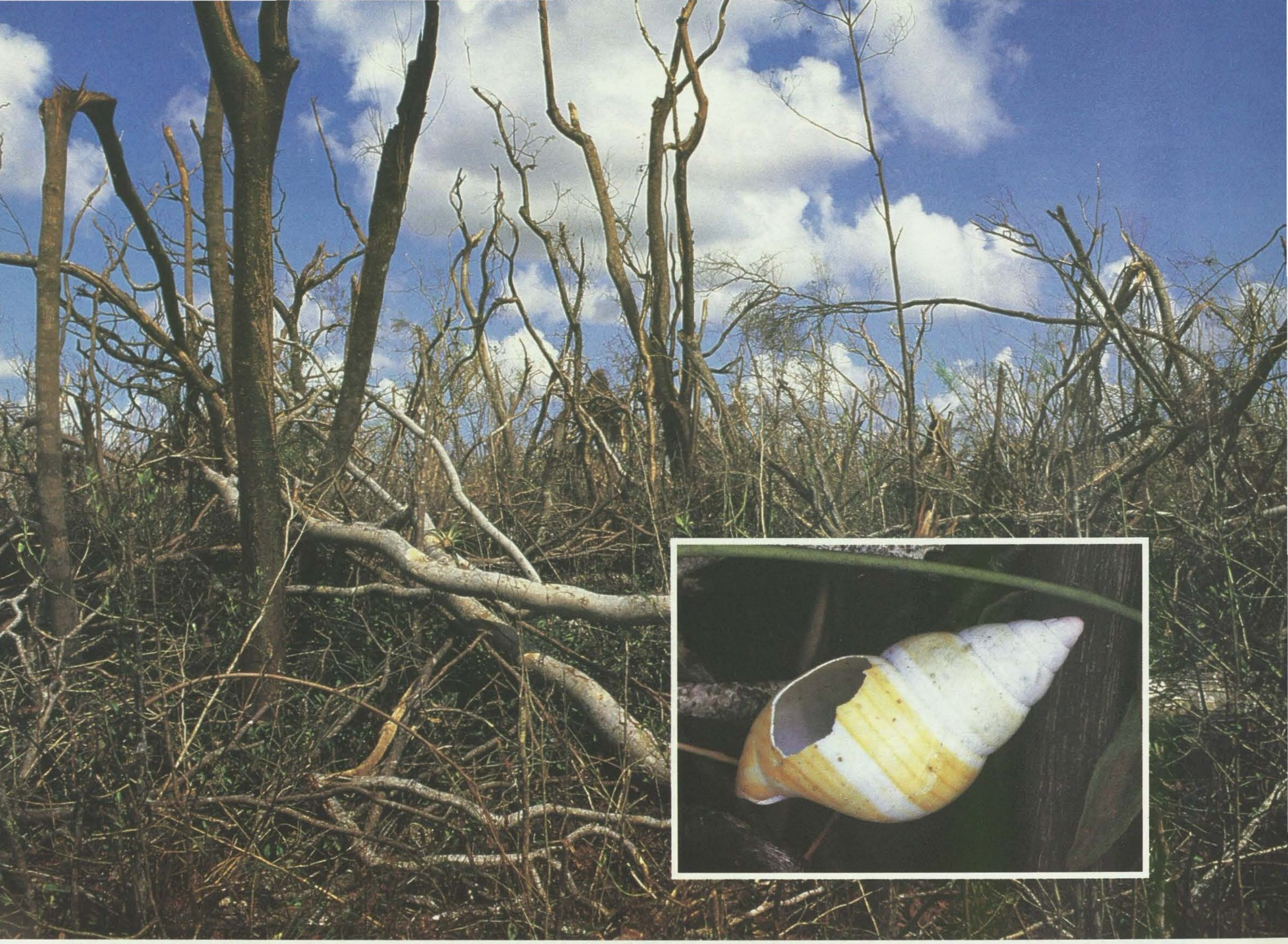
When the winds died down, free-lance and National Park Service photographers toured the damaged areas and recorded these images of Andrew on film.

— Scott Ball



NATIONAL PARK SERVICE

Hammocks, such as this one at Paradise Key in the Everglades, generally fared worse than pine or saw grass areas. ▷



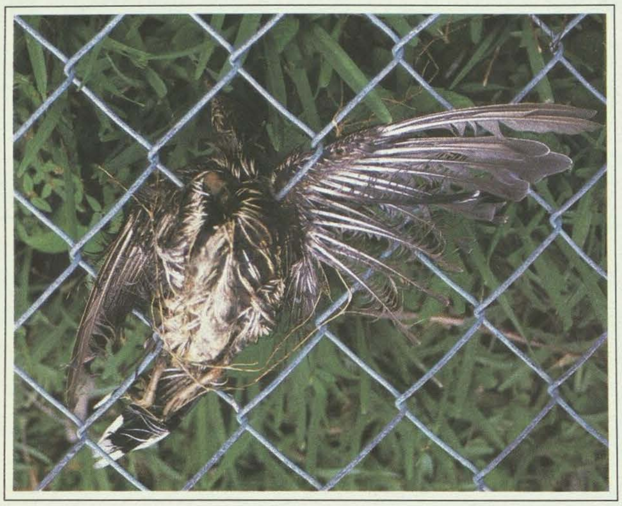
A Liguus tree snail dead and broken in the debris of its former home, a hardwood hammock damaged by Hurricane Andrew.

Scientists fear that seeds from the exotic Brazilian pepper (above) and the melaleuca tree (right) have been blown into damaged hardwood hammocks, where they will displace native species.

PAGE 22 PHOTOS BY
HELEN LONGEST-SLAUGHTER

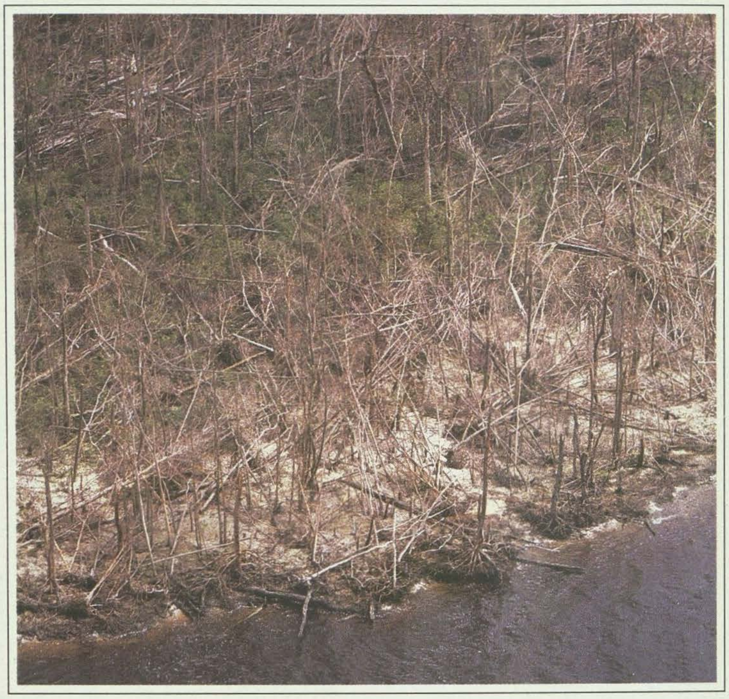
JEFF RIPPLE / NATURE IMAGES

A month after Andrew damaged Royal Palm Hammock, signs of regeneration were apparent. ▷


NATIONAL PARK SERVICE

Mockingbird (above) impaled on a fence in Florida City.

(right) About half the mangrove trees in Everglades National Park were blown over.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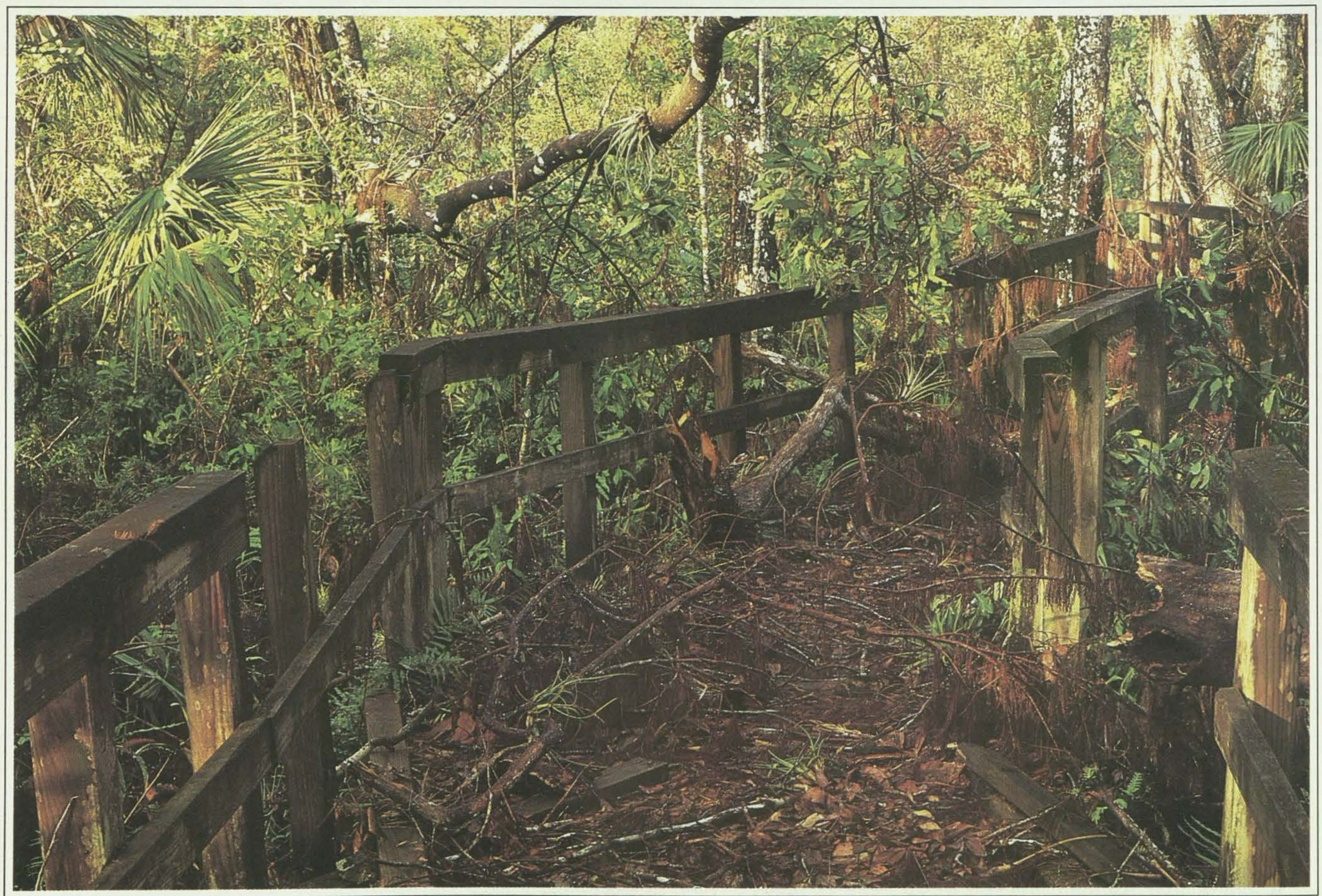
The boardwalks along Fakahatchee Strand (below) and many other areas suffered heavy damage.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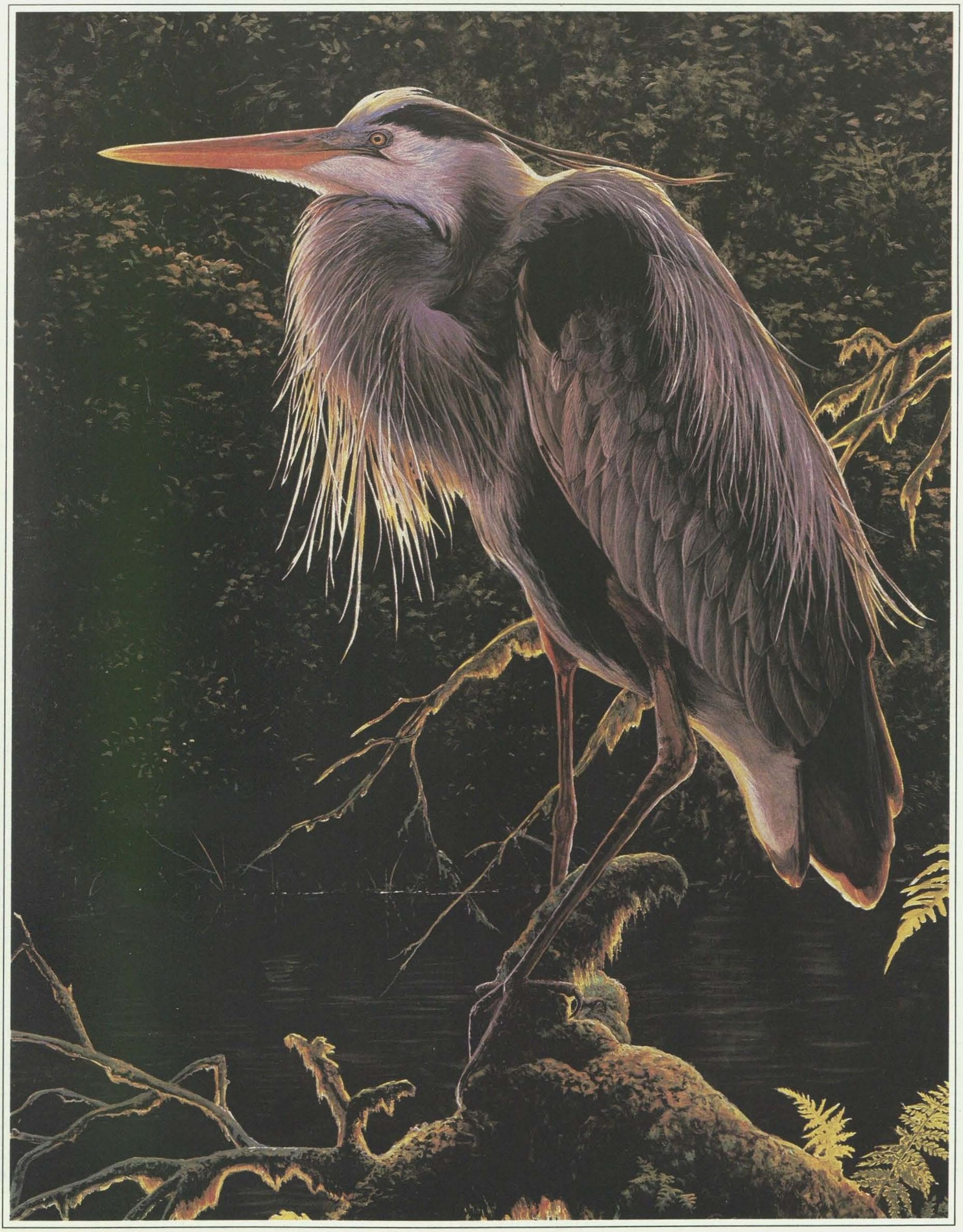
Wildlife Artist
Jan Martin McGuire



Jan Martin McGuire

When she started catching and keeping insects and snakes as a youngster, Jan Martin McGuire's parents knew that they had the makings of a naturalist, a tomboy, or both, on their hands. But they supported her interest in wildlife and encouraged her artistic development.

"I loved to roam the woods near our home in the suburbs of Colorado," the artist said of her early fascination with nature and art. "I guess I never really grew out of it because now wildlife art has become my life," McGuire added.

She combines her hobby of solo backpacking with her artistic field work, which has extended from the Florida Everglades to Glacier National Park. Gathering wild, edible foods, she lives off the land when she can. "I recently caught a cutthroat trout, and ate it with a freshly picked salad of wild greens and cattails. I cheated a little by taking Bisquick along, but it was wonderful to eat a wild berry cobbler while out sketching."

Creating volumes of detailed field notes in a sketch pad, she then returns to her Oklahoma art studio to complete her research on wild animals and their habitats. Whether she's painting the lichen-covered forest floor of Olympic National Park or the moody grayness of a Florida cypress swamp, she strives to accurately depict wildlife habitats, as well the animals that reside within.

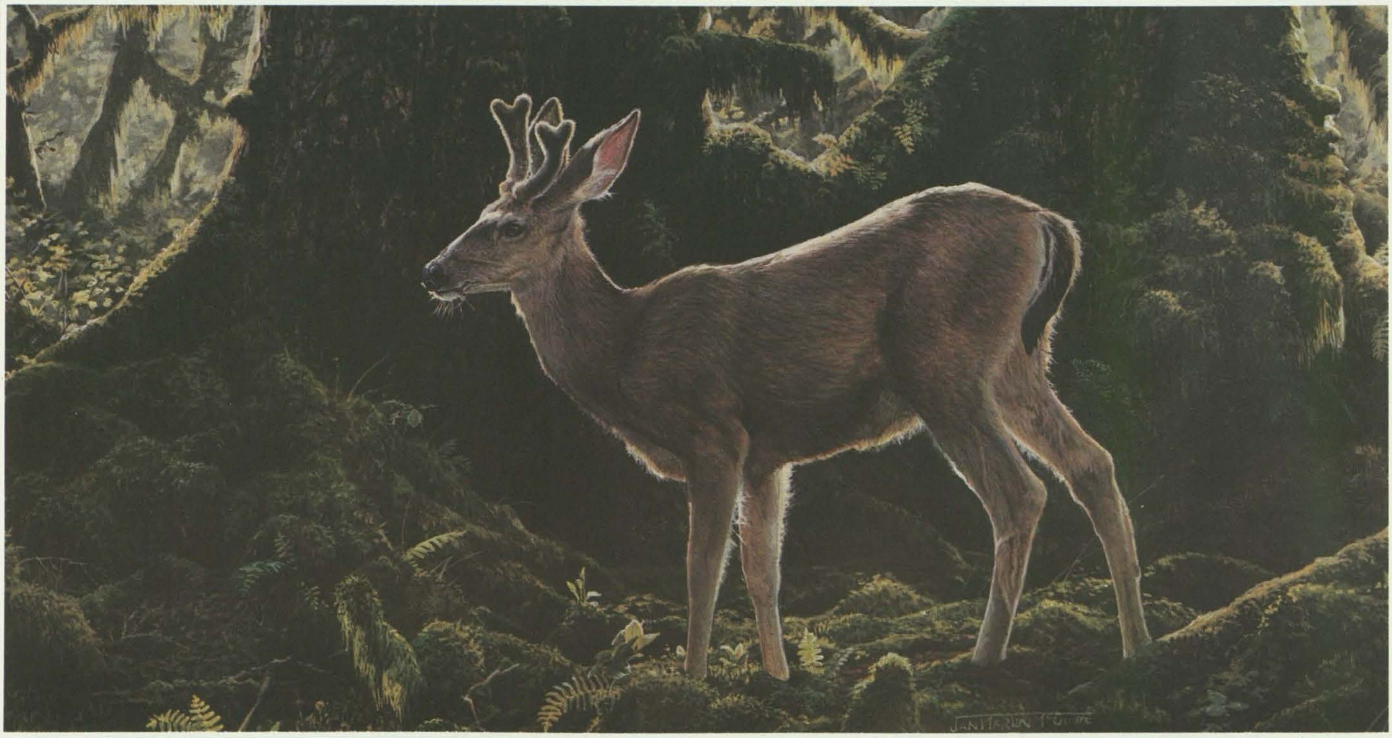
Her distinctive proficiency with acrylics has brought considerable acclaim, although she continues to hone her skills by studying with internationally known artists, including Carl Brenders and Robert Bateman.

"Bateman helps students get away from the 'cookie-cutter' approach to wildlife art. He doesn't just teach painting techniques -- he stresses developing *ideas*," she said. "Paintings are conglomerations of who you are, where you've been and what you've seen, not just your technique. So there's really no way that you will paint just like another artist, even if you do have a similar style."

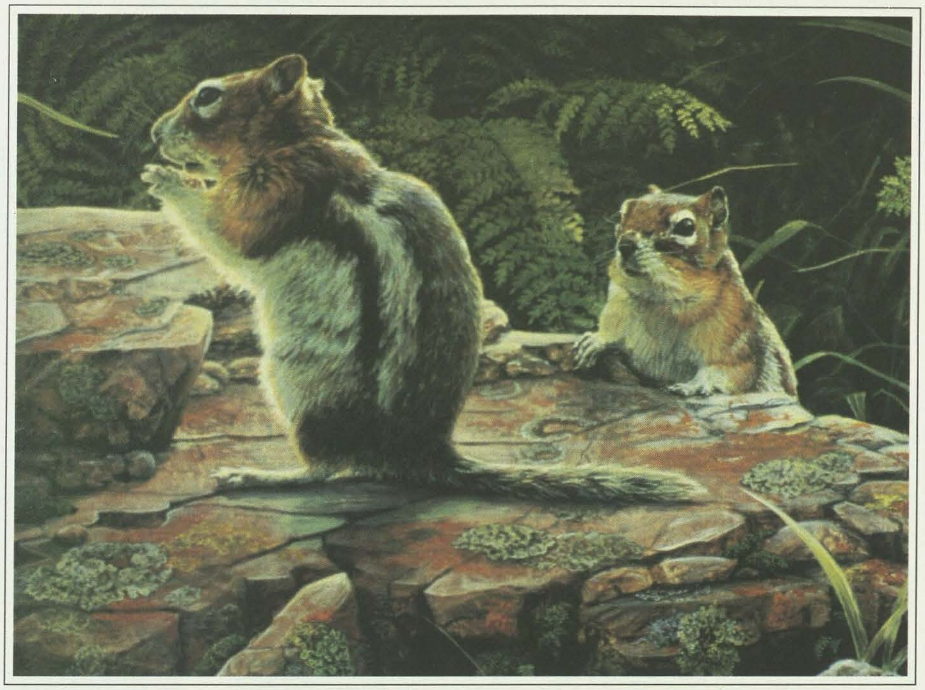
She began realistic wildlife painting as a full-time endeavor 10 years ago, and her dedication to conservation efforts is truly commendable. A member of over 30 conservation groups, she has generated thousands of dollars annually for national conservation groups and has exhibited in the American Museum of Wildlife Art, the Smithsonian and other premier exhibitions that focus on preservation efforts.

"As Robert Bateman says, there's no more 'free lunch' when it comes to conservation — we've all got to pay our way," she added.

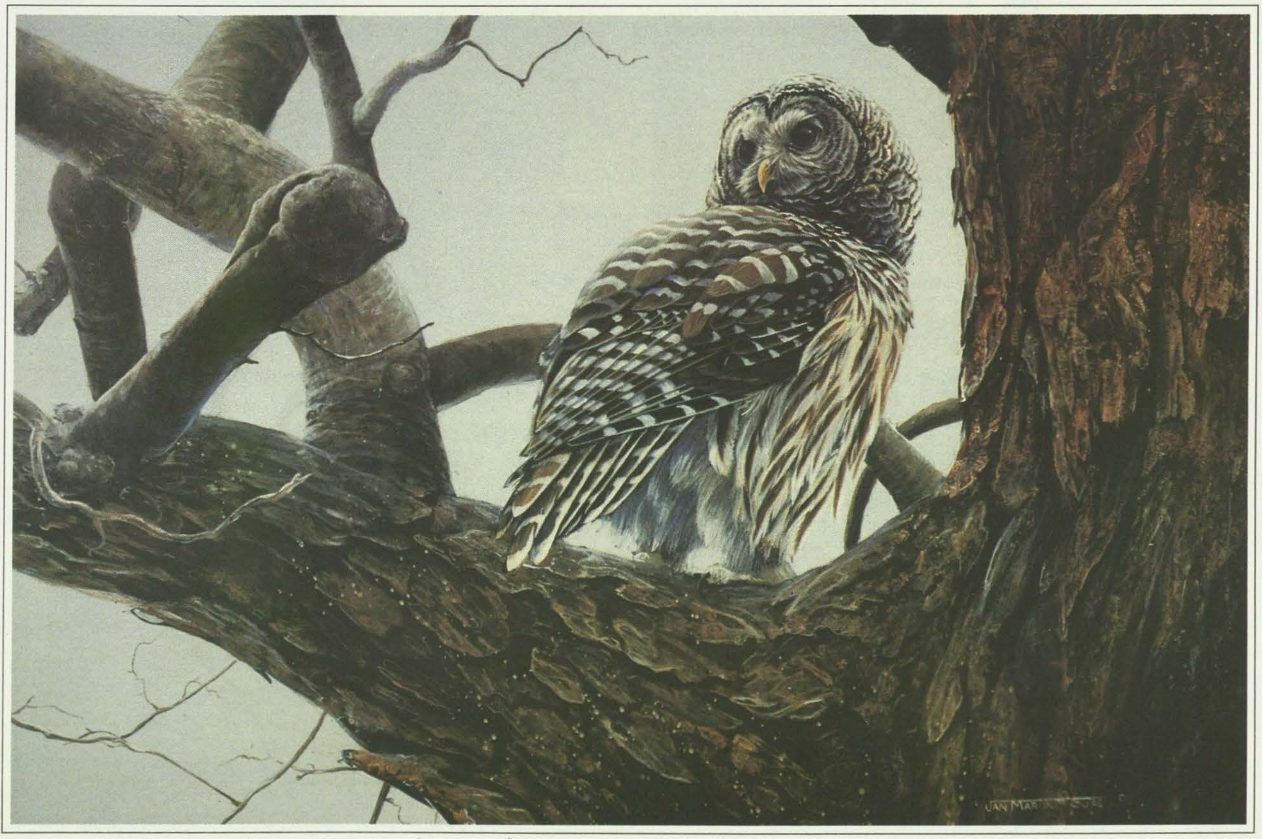
— Andrea H. Blount



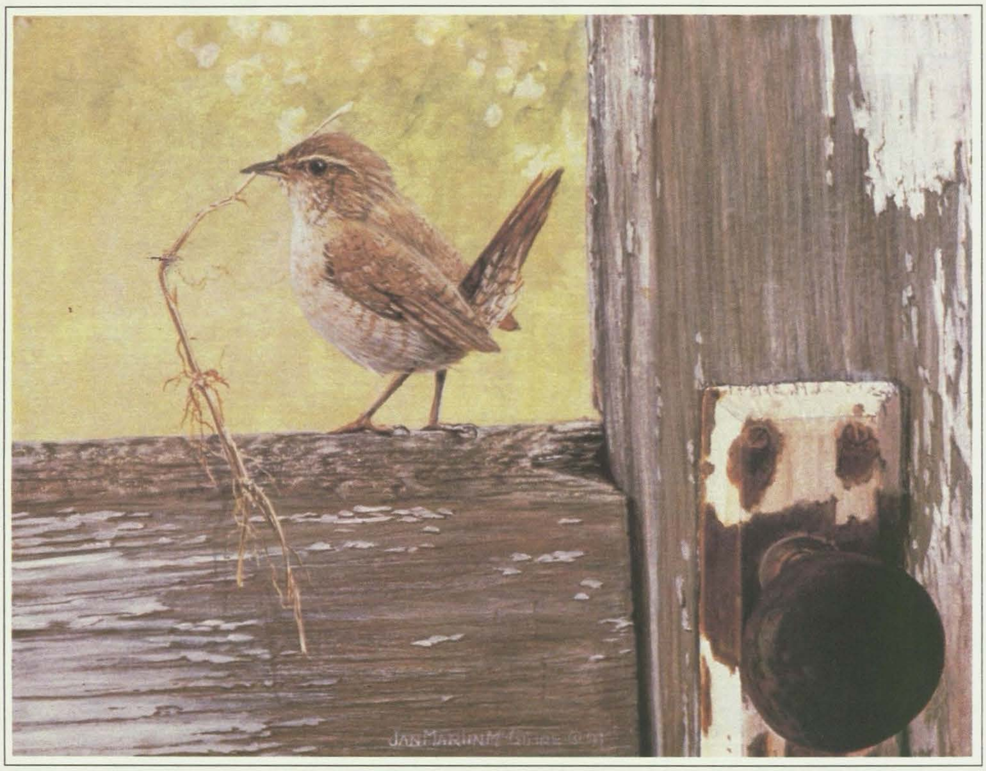
EVENGLOW — A black-tailed deer in the forest of Olympic National Park.



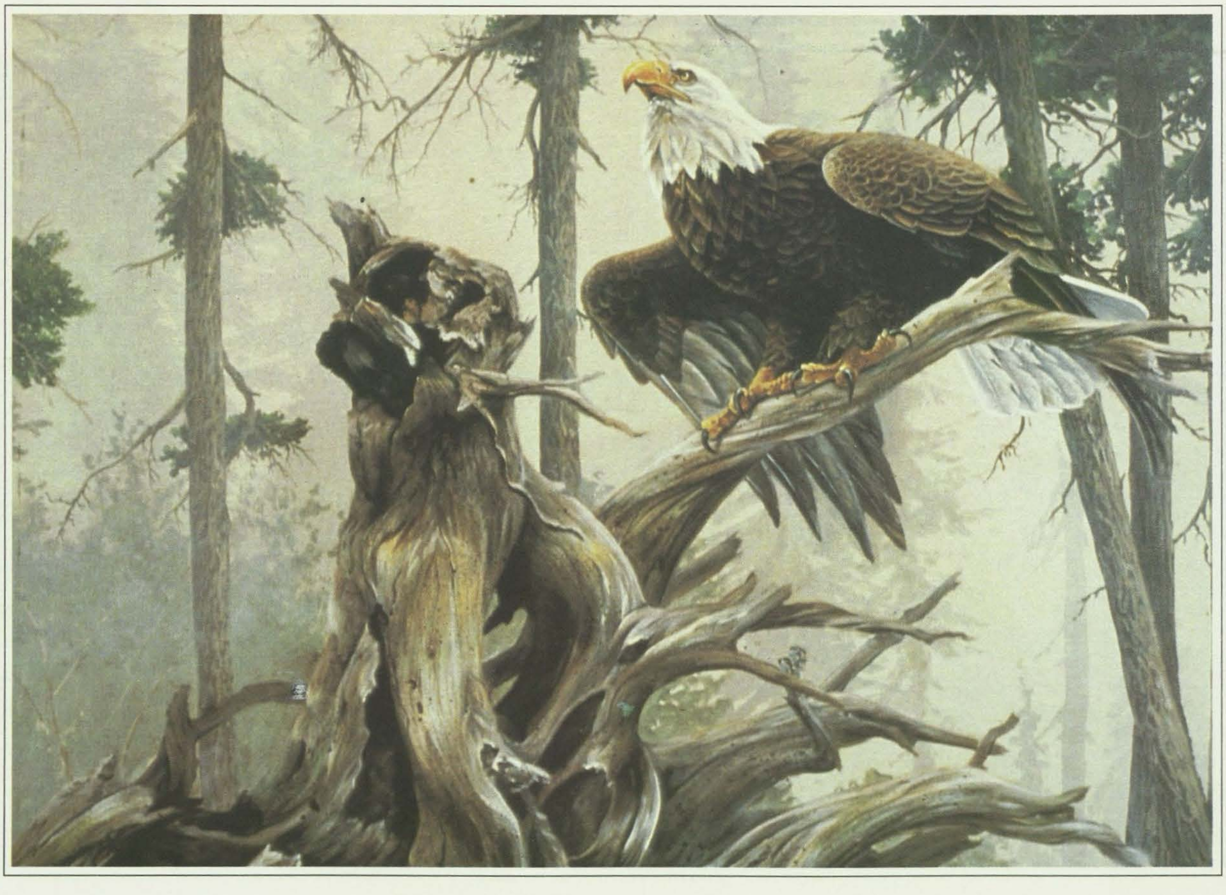
EVENING MEAL



GRAY DAY WATCH



OLD BARN WREN



WILD HERITAGE

FLORIDA WILDLIFE

Cover Art Contest

Deadline for submission of slides: Monday, May 3, 1993

PRELIMINARY JUDGING: Send labeled 35mm color slides or larger transparencies of your artwork. Artists may submit up to three entries, and art should fill the entire frame of the slide if possible. Do not send slides of framed work. All slides will be returned after the winning art has been published in the July-August issue.

SUBJECT MATTER: Native Florida species from the following categories are suggested:

Nongame species such as turtles, salamanders, butterflies and birds such as songbirds, wading birds and raptors.

Game and furbearing species such as white-tailed deer, wild turkey, bobwhite quail, mourning dove, ducks, largemouth bass, otter, beaver, fox and bobcat.

Endangered species such as the Florida panther, red-cockaded woodpecker, Key deer and American crocodile.

SIZE AND COMPOSITION: Submissions should follow a horizontal 11 x 17-inch format (size of magazine unfolded) with the main subject placed on the right-hand half of the work. Remember, the FLORIDA WILDLIFE logo will be placed across the front cover, two inches from the top. The artist's signature should be well integrated with the painting or placed in the lower right-hand corner with ample space from the edge of the work.

AGREEMENT TO PUBLISH: The winning artist's work will be displayed on the cover of FLORIDA WILDLIFE's July-August 1993 issue. The artist will be paid $500 for the cover and rights to publish 1,000 limited edition, numbered and signed prints. The agreement will specify delivery terms, vest ownership of the original with the artist and provide the Commission with future rights to feature the work for promotion. The artist will receive 25 prints. Honorable mention winners will receive a cash award.

JUDGING: Entries will be judged on originality, anatomical correctness, color, design, mastery of the medium chosen and appropriateness to the magazine's format.

SEND TO: Art Editor, FLORIDA WILDLIFE, 620 South Meridian St., Tallahassee, FL 32399-1600. Include your Social Security number, daytime phone number and a self-addressed, stamped envelope with your entries.

The magazine staff will provide reasonable care for slides received from artists but cannot be responsible for loss or damage. Artists should insure their slides if they feel it is necessary.

Take a Shot With a Camera

Text and Photographs by Charlie Heidecker

It was one of those special mornings, cool and crisp as the sun came up -- the kind of winter day when many of us enjoy being outside. I'd been at my hunting stand for over an hour when I recognized the familiar gait of an animal heading straight for my hiding place. I sat motionless as a nice eight-point buck crested the rise, only 50 feet in front of me! Putting him in my sights, I squeezed off three or four shots before he was gone, almost as quickly as he had come.

Last year was one of my best. I "shot" at least 40 deer, two Florida panthers, a dozen turkeys, some owls and even 20 bald eagles. Visitors are impressed by the number of endangered species hanging on my den walls! Hunters turn green with envy when they see so many trophy specimens in one place. And I'm not afraid of wildlife officers because I don't use a gun -- I use a camera.

Several years ago a neighbor sold me his photography equipment because he was getting a newer setup. I spent many hours reading about wildlife photography, how to locate many of the more elusive animals, how to compose and frame your subject properly. Before I knew it, I was able to take pictures without cutting off my subject's head.

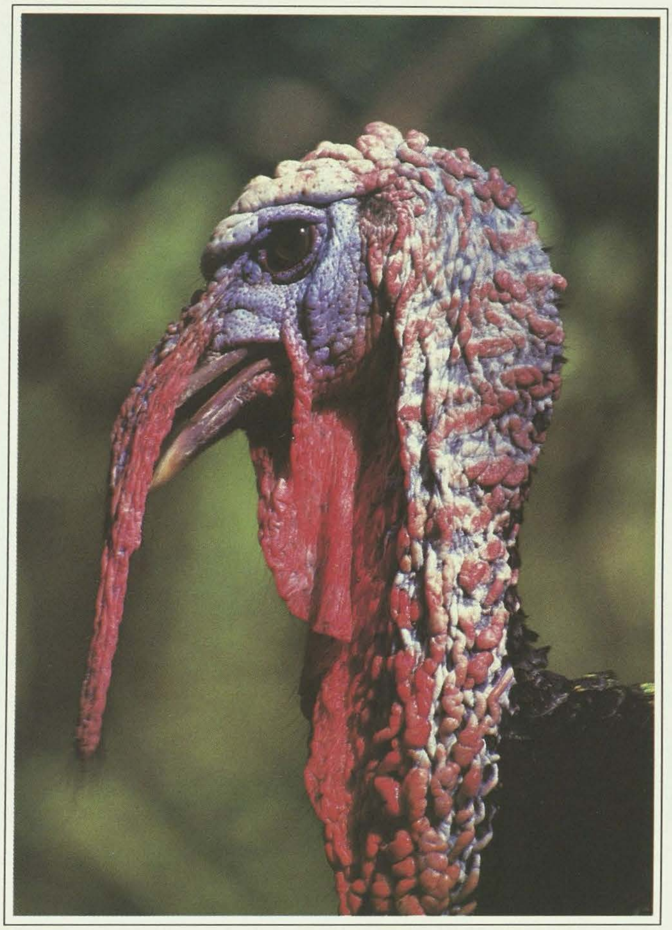
Armed with my camera and newly learned talents, I showed up at my hunting camp and was almost laughed right off the premises. Nevertheless, after the first two days I had scored three of the nicest turkeys anybody had seen in the area in many years. I had brought along my darkroom equipment, and after developing the film, I made several prints of what I'd "shot." Whoever said that you see more game when you don't have a gun was right. I had the pictures to prove it!

When that hunting season ended, the score at the camp was one turkey for the gang and five for me. But I didn't have to clean mine! I did have to make several extra prints for some of the other gun-hunters in camp, however, just to prove there were animals in our area.

Since that first year when I put down

my rifle in favor of a telephoto lens, my hunting trips have been much more productive. I never have to wait for hunting season to open, nor am I limited to a certain kind of game. If you love the outdoors as much as I do, consider hunting with a camera. You'll be amazed at the satisfaction you get as your photos improve. Your den walls will begin to fill with "trophies" that will drive your gun-hunting friends crazy.

Someone once told me that the hours you spend afield enjoying wildlife are not deducted from your life span. If that's the case, then I have earned a lot of "credit" during the last 10 years by camera-hunting, especially in wildlife refuges. A recent refuge visit netted me a bald eagle and yellow-crowned night heron. We love to see the roseate spoonbills arriving at Ding Darling Wildlife Refuge on Sanibel Island or listen to the overwhelming noise from a flight of thousands of snow geese when they drop into Brigantine Wildlife Refuge in New Jersey around Thanksgiving. Sights like these should be preserved, and photography is one way to do that. ▷



Like anything else, if it's worth doing, it's worth doing well. There are lots of helpful books, articles and workshops available to photographers of all skill levels. Only with practice, patience and some good instruction will you make any progress. When I started, I thought all of my photos were great. I have long since filed them in the waste basket. Remember, pictures are not like fine wine; they don't get better with age.

Your gun-hunting skills will help you with your new hobby. Your ability to set up a blind, for example, will enable you to get great closeups. First, take time to observe the wildlife you plan to shoot. If the deer cross the open field, set up your photo blind along one of their trails, and you may be lucky enough to get a nice shot or two before they bound off. Your blind need not be elaborate -- several burlap bags and some fallen tree limbs will enable you to shoot to your heart's content and not scare away your game.

Some of the better blinds are built on assembly lines in Detroit. I have found that by staying in my car and taking pictures through the window, I get better photographs. Some animals are accustomed to cars driving by. But open your door, and whatever you were trying to photograph is gone.

Animals are very curious. If you remain motionless when they spot you, they may even come closer to investigate. Readiness is the watchword. You must know your camera well, because you might have only a few seconds to get that shot before your subject is gone.

You may find, as I have, that with a camera, you can "hunt" land that was off-limits when you carried a gun. If you get a good photo, make a copy of it for the landowner who opened his preserve for you. He might not put it over the mantle, but the next time you ask permission to "photo-hunt" his land, he might cut your waiting time considerably by telling you where he has seen game.

Use of a feeding station also is productive. But bear in mind that it is illegal to gun-hunt over one unless it has been maintained continuously for six months prior to hunting season. The sheer number of animals that stop by for a snack will amaze you.

The better photographer you become, the more photo opportunities you will have. People who find injured birds may hear about your interest and give you a call. Or someone who has seen your photo collection might bring an animal to your home. Situations like these allow you to be inventive. Ask about photo possibilities at wildlife rehabilitation centers. Many of these centers will welcome a good photographer, especially if he shares his prints with them.

Don't be disappointed if you don't see any wildlife your first time out. Patience is the watchword, and you might have to make several trips into an area before you score.

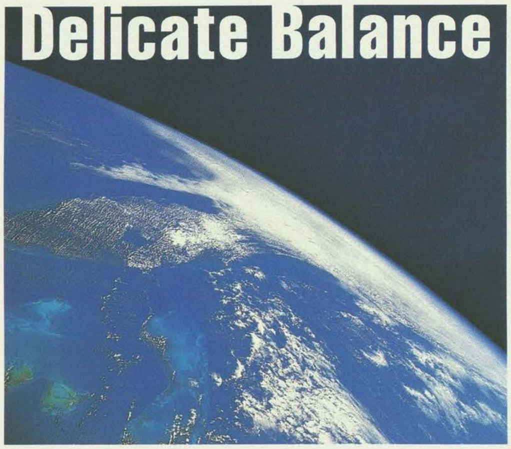
In your quest for pictures, it is extremely important that you never corner any animal, inadvertently prompting it to attack. Remember, even the smallest animals are dangerous when cornered. The golden rule of all wildlife photographers is to respect your subjects and not disturb them. Young birds left too

long because their parents were frightened away will die. A fawn will suffer if you think it is lost and take it away from its mother. A mother bear is very protective and will charge if you get between her and her cub.

After hunting season ends and you've cleaned your guns and bows and stored your hunting gear, it's time to prevent the case of cabin fever you're about to catch. Pack a lunch and your camera and head for your own special place to see if you too can put a couple of trophies on the den wall.

Charlie Heidecker is a free-lance photographer/writer and a frequent contributor to FLORIDA WILDLIFE.

Delicate Balance



Species: Roseate Tern (*Sterna dougallii*)
Florida and Federal Status: Threatened

Roseate terns may be among the very few south Florida residents that Hurricane Andrew left unscathed. That's only because, like other beach-nesting shorebirds, roseate terns usually complete their breeding in early summer, in advance of the treacherous part of hurricane season.

But don't think that roseate terns aren't without their problems. There have been drastic declines in tern and other shorebird nesting populations on our beaches in recent years due to beach development and other human disturbance. Mortality from dogs, cats, rats, raccoons and other predators also has taken a toll. The nests of these birds are simple, shallow scrapes in the bare sand. Tern eggs are speckled with the colors of shell fragments and coarse sand, which camouflages them from many predators. Nevertheless, people and pets increasingly disturb nesting colonies and thwart the birds' annual attempts to raise their young.

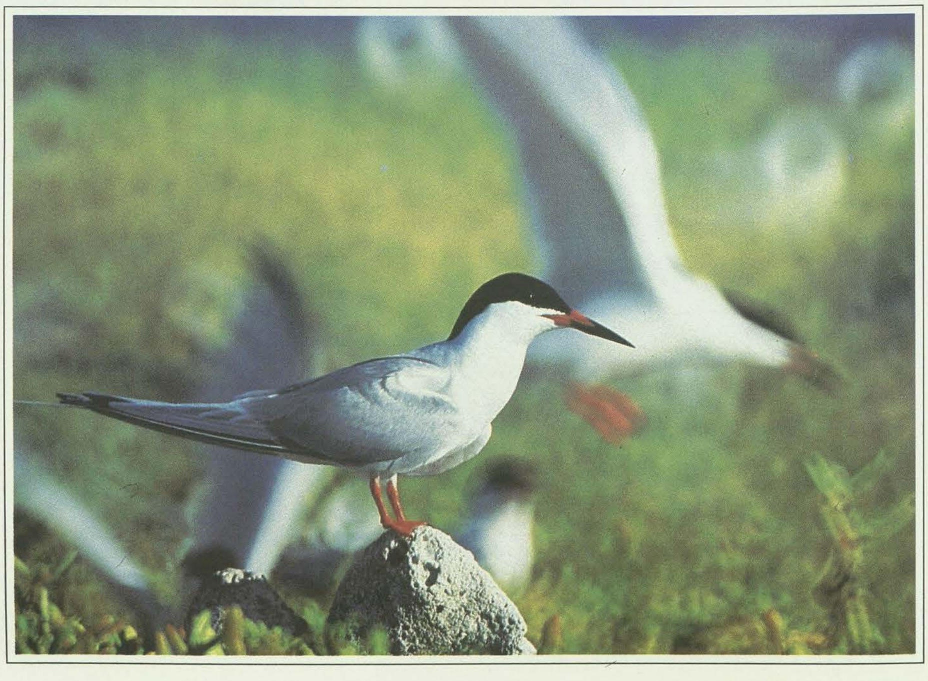
Most people never will see a roseate tern because the bird is essentially oceanic in nature. Noted ornithologist Alexander Sprunt mourned this fact, describing this beautiful, graceful bird's fishing dives as "a living arrowhead in swiftness." Plunge-diving, the technical term for the bird's method of capturing prey, involves approaching the water from a height of 15-65 feet at a high rate of speed. Small marine fish captured in this manner, often in water with strong currents, are the mainstay of roseate terns' diets.

Three other species — Forster's, common and Arctic terns — may be confused with roseates when they are in the same stage of development. In winter, Forster's tern is more common and the one you are most likely to see; roseate and Arctic terns are rarely in Florida at that time of year. In breeding plumage, however, all four species are difficult to separate from one another unless you are familiar with their calls.

In Florida, the roseate tern is strictly a coastal species. Our roseates are part of a southern population that breed on a number of islands throughout the Caribbean Sea, including the Florida Keys and the Dry Tortugas. In the Keys, roseates breed on a very limited number of sites, including several rooftops in Key West. Dry Tortugas breeding sites have hosted even fewer numbers of breeding pairs during recent years. In response to the terns' dwindling population and the instability and otherwise extreme vulnerability of their island nesting colonies, the Game and Fresh Water Fish Commission designated Pelican Shoal, near Boca Chica Key, as a Critical Wildlife Area in 1990. This tiny island contains the only concentration of roseates in Florida — 275 pairs were sighted nesting there in May 1992.

Thanks to a strong partnership between the National Audubon Society, the Department of Natural Resources and the Commission, roseate terns will have safe nesting habitat in at least one suitable site for years to come.

— Susan Cerulean



MARK ROBSON

Hunting Knowledge Helps in Fishing

By Mark Fisher

This is a great time of year for sportsmen in Florida. Depending on where you live, deer hunting season is either near its peak or about to end. But the end of deer season is no time to despair. It's a sure sign that bass fishing is about to heat up.

So don't put away your hunting expertise for the year along with your rifle and tree stand. Certainly, bass fishing is different from deer hunting. But many of the techniques and much of the knowledge that bring success while hunting deer can also add up to more strikes during bass fishing trips.

OK, so bass don't live in the woods, eat acorns or have white tails. But your hunting lessons can be valuable when you consider the senses of the bass, their areas of resting and feeding and their behavior during the spawn. Throughout hunting season, you learned how to outwit whitetails. That experience took too much effort to acquire and is too valuable to set aside just because you're going after bass instead of deer.

During deer season, you learned to avoid detection so you wouldn't spook the game away. You may have used an elevated stand or camouflage clothing to keep your presence hidden. By the same token, bass become suspicious when humans are nearby. Apply the same care to fishing that you took when hunting to make yourself as noiseless and invisible as possible. Avoid scraping or dropping things in the boat. When bank fishing, keep a low profile.

Although you don't want your intended game to hear, see or smell you, you still can take advantage of its senses. Some deer hunters have success by rattling horns or using calls. The clanking, buzzing or rattling of fishing lures will serve the same purpose. And sex scents intended to attract deer are similar to the sprays designed to make your lure more appealing to bass.

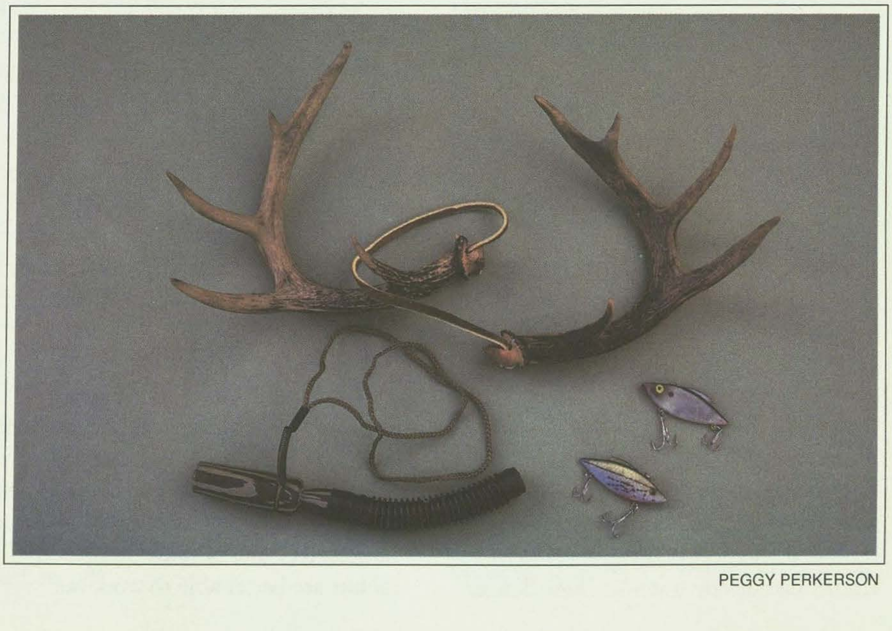
Deer and bass are also similar when it comes to their preferred habitats. The deer's instinct to hide from predators makes it resort to areas with lots of thick cover like swamps and large brier patches. And although bass in the South are the predators of the lake rather than the prey, they still live in thick cover. Such cover, like brush piles and heavy vegetation, provides bass with an ambush point to await baitfish. You looked for the thick stuff to locate deer; stick to that strategy in search of bass.

When scouting deer, you have to distinguish their feeding areas from their resting areas. Once you have located both areas, you can situate yourself along travel routes to catch them moving between the two. Bass also have travel routes. When they're not actively feeding, you still can catch them by concentrating on their holding areas or travel routes.

As with deer, bass are less wary when it's time to mate. So spend a lot of time on the lake during the spawn, just as you tried to get to the woods as often as possible during the rut. Not only are deer and bass less cautious during this period, they both give indications as to where you can find them. You scouted scrapes to locate deer during the rut; so now look for bass beds during the spawn.

You can apply many of your hunting approaches to bass fishing, so don't discard the knowledge gained during deer season as you head to the lake. You had to consider the deer's senses, discover their feeding and resting areas, concentrate on their travel routes and take advantage of the rut. You'll be going through the same process when fishing for bass. So don't start over from scratch, just follow through with what you've already learned.

*Mark Fisher is a free-lance writer, contributing editor for **Georgia Wildlife** and copywriter for Bass Pro Shops.*



PEGGY PERKERSON

Forgotten Game

Hunting Rabbits in Florida

Text and Photographs by Lt. Dewey A. Weaver

Barking excitedly, the hounds caught the attention of all the hunters in the party. They were chasing a large buck to the small clearing where I was standing. I could hear the dogs approaching, and our excitement grew as the animal came closer. The "buck" that emerged was not a deer, but a male rabbit.

The rabbit is one of America's favorite game animals. Subject of numerous folk tales and nursery rhymes, it is also the source of many hours of outdoor recreation. In northern states, rabbit hunting is a major winter sport. Family and friends gather around a grain field or woodlot to spend the day listening to a pack of beagles pursuing cottontails.

Yet, most Florida hunters miss this opportunity to enjoy great excitement and hound chases. That's probably because the best time to hunt rabbits is winter, when most sportsmen are seeking deer or turkey. But rabbit hunting is still good in late January and February, after deer season closes. The vegetation is dead from frost, and there is less danger of snakebite to the dogs.

Two native species of rabbits occur in Florida. The cottontail fancies upland sites – grassy areas with good cover and tender plants to nibble. Recent cut-over sites in pine forests offer excellent cottontail habitat. Marsh rabbits choose dense vegetation around wet areas like freshwater and coastal marshes. The marsh rabbit is smaller, has thicker, coarser hair and is darker brown than the cottontail. This rabbit would rather walk than hop. A very good swimmer, it will readily take to the water to elude danger.

Rabbits are vegetarians, eating grasses, clover, berries, tender shoots, sprouts and bark of some young trees. An excellent way to locate them is to look for young winged sumac trees where rabbits have stripped the bark away.

The traditional hunting method is to cast beagle hounds into thick underbrush to pick up the rabbit's scent trail. Trailing lasts a few minutes before the beagles get close enough to "jump" the rabbit. Jumping the rabbit means approaching it close enough to make it run, as opposed to merely following the scent trail.

Hunters stand in a line close to the area where the dogs jumped the game, since the rabbit eventually will return to this area. Although not required when rabbit hunting, it is advisable to wear hunter orange.

The cottontail's habit of running in circles ensures that the chase will never get out of hearing range. The dense habitat makes it unnecessary for the rabbit to leave the immediate area to escape the dogs. Ideal areas have blackberry briars and fallen tree tops or brush for escape cover. Rabbit tricks for eluding dogs include running into thick log jams, jumping creeks, back-tracking on the same trail and escaping down gopher tortoise burrows. Much of the day's enjoyment is watching and listening to the pint-sized hounds trying to put together the puzzle created by these tricks.

Although the beagle is by far the most popular breed for rabbits, hunters also use young Walker hounds. Some fox hunters feel that hounds trained on rabbits are better able to work out complicated scent trails and develop keener noses.

According to Joel Niblack, a beagle enthusiast who lives in Ft. White, there are two types of beagles. Either is suitable for hunting rabbits in Florida, and choice depends more on hunter preference.

"The hunting beagle is more popular," Niblack said. "This beagle is much faster in trailing and at times will overrun the scent trail. These hounds work hard in the woods, checking briar thickets and other likely spots for rabbits.

"The brace beagle, which some people refer to as a field trial beagle, is much slower and deliberate while trailing," he continued. "Much of the rabbit-hunting instinct is bred out of the dogs to make them perform better in field trials. The brace beagle is the original field trial beagle and gets its name from the practice of releasing the dogs two at a time. These paired field trials have taken place for over 100 years. Field trials for hunting beagles, on the other hand, release the dogs in packs of five to 10. To hunt brace beagles, the hunter needs to walk with the dogs until the rabbit is jumped."

Most beagles are either 12 or 15 inches tall, as measured at shoulder height. The 12-inch size is more prevalent with most Florida rabbit hunters. The beagle's energetic nature and willingness to please make it a popular choice as both family pet and hunting dog.

Novice rabbit hunters might have doubts about training beagles for hunting. Based on my experience, training is not difficult. Taking the dog afield is usually

all that is necessary. Beagles will instinctively chase rabbits. With a little training, most any type of dog will chase rabbits.

I once owned a German shepherd that loved to chase rabbits. The dog worked as a companion to a beagle, and the pair loved jumping rabbits in the citrus groves of central Florida. The beagle barked on trail and the shepherd barked on sight during the chase. This pair made fine hunting companions during my youth, and we spent many days walking the groves.

When hunting rabbits, an ideal choice of firearms is a lightweight, 20-gauge shotgun using No. 6 or No. 8 shot shells. Since rabbits are fast and run in an erratic course, the smaller shot aids in hitting the diminutive targets.

A good way to practice for hunting rabbits is to visit a range specializing in sporting clays. These courses offer a variety of moving targets, from wing shots to running-hare targets. Although shotguns are preferred, rifles, pistols, longbows, crossbows, compound bows and birds of prey are legal hunting tools. It is not legal to hunt rabbits at night with a gun and light.

No closed season exists on rabbits, and the bag limit of 12 per day is liberal. Rabbits in Florida reproduce rapidly, and hunting pressure is low, so there is no need for more restrictive seasons or bag limits.

Wild rabbit is excellent table fare. After skinning, soak the meat overnight in salt water or your favorite marinade. Parboil the meat before frying or barbecuing. My favorite method for cooking rabbit is to use a water cooker. Allow the meat to cook slowly while basting with sauce. This makes an enjoyable light meal when served with salad and rolls.

Rabbits will never replace deer as the most popular game species in Florida. Still, rabbits can give the houndsman a chance to run dogs on small parcels of land. Even the fastest beagles can run on 20 acres, and slower-trailing dogs have races on five to 10 acres. For a combination of sport, exciting hound races and excellent table fare, try this forgotten game animal.

Lt. Dewey A. Weaver is the public information director in the Commission's Lake City office.

Beagle owners interested in field trials for brace-class dogs can contact Joel Niblack, P.O. Box 206, Ft. White, FL 32038.

Owners interested in field trials for hunting class dogs can contact one of the following clubs for additional information.

Northwest Florida
Blackwater Beagle Club
176 Marcia Drive
Mary Esther, FL 32569

Northeast Florida
Gateway Beagle Club
4080 Hidden Acres Road
Middleburg, FL 32068

Central Florida
Mid-Florida Beagle Club
Joe Bradner
P.O. Box 694
Mt. Dora, FL 32757

Bay Area Beagle Club
Bobby Gomez
1220 South 66th Street
Tampa, FL 32619

Of Fathers and Sons

Text and Photographs by Ken Stivers

"Daddy, take me!" My 3-year-old son looked up longingly as I stepped off the porch heading for my pick-up.

All I could think about was how aggravating it was to try to get out of the house without somebody complicating things. I ignored Klay's pleading and cranked up my truck to back out of the driveway when I made the mistake of glancing back. He looked so small and forlorn standing there with his untied shoelaces streaming out behind him. I stopped the truck and stared at him, recalling how I felt at his age, how my whole world centered around doing whatever my daddy was doing. At that age I was too young to play with the big kids, too young to ride a bike and too young to leave the house alone. My whole life depended on a grown-up giving me whatever I got, no matter how insignificant.

That's when I broke. I threw open the door, clapped my hands in a loud "pop" and motioned him toward me. His face immediately erupted into a gap-toothed smile, showing his deep dimples. Once again his eyes sparkled as he raced off the porch, tripping over his flopping shoelaces, falling face-down in his mamma's flower bed and skinning his knee. Any other time he would have cried, but this time he was in ecstacy. He immediately jumped up and came running with his arms extended above his head and shoelaces flying.

I guess parents need to be reminded how badly our children need us at this age. And so it was that day in 1973 as we drove to the gas station with his sweaty, little arms wrapped around my neck, his skinned knee bleeding on my shirt, and his muddy shoes soiling my truck seat.

By 1975, I was a 35-year-old Cracker boy who, after years of trying, was finally able to afford the beginner's models of big boy toys that we try to convince our wives are necessities. "We need a second vehicle, honey. Why don't we get a pick-up truck, it'll be so handy...If I just had an automatic shotgun I could stop a whole army of burglars by myself...Klay needs a pet. Let's buy something practical like a pair of beagles we can also use as watch dogs."

After a while, we accumulate enough of these necessities until we discover that...SHAZAAM!...perhaps these items could be used for recreational pursuits such as hunting. As luck would have it, the dogs were from hunting stock, the truck had four-wheel drive, and the shotgun was a full-choke, 30-inch barrel, buckshot-shooting wonder. What a coincidence!

> **Most of the "deer" tracks he identified belonged to animals that barked, mooed or wore a saddle.**

I literally lived my first 35 years waiting for the next hunting season to open. Among other things, I had the best hunting partners alive. There was never a moment's doubt that when the season opened, these characters would be ready to roll. What a great mental lift to know that I'd spend every spare moment during the cool, autumn months in the woods pursuing game with my pals. Nothing, short of work, was allowed to interfere with these seemingly few weeks of heaven. Knowing I felt that way, how in the world could my wife be so thoughtless as to give birth to both of our children smack-dab in the middle of hunting season?!

As each season rolled by, I became more intent on hunting and allowed less outside interference. Whenever possible, I would take off on a Friday or Monday to spend a long weekend at "Pinhook," a camp in the north Florida woods built by my hunting club. Initially, my wife, June, occasionally wanted to go with me and bring the children along. Klay loved it, but his younger sister, Kimbril, was repulsed by the whole scene. She preferred to be with her friends in Tallahassee playing with dolls and such.

Klay went with me more and more often each year. From the time he was 3 or 4 he would stand on the seat of my truck and peer out the window as I drove, looking for deer tracks. By the time he was 5 or 6 he actually found one. Most of the "deer" tracks he identified during those early years belonged to animals that either barked, mooed or wore a saddle. By the time he was 7 or 8 he could readily distinguish between a hog track and a deer track -- something most grownups can't do. He quickly developed into a very good hunter.

I often wonder if our ancestors agonized over the "uncivilized living" that we now so eagerly anticipate. As sure as our forefathers strove to get out of the wilderness, we strove to get into it. We intentionally isolated ourselves in the middle of the 20,000-acre hunting lease in an area of northeast Florida known as the Pinhook Swamp. About half of our land was in Georgia, half in Florida, and the Okefenokee Swamp was across the road.

One thing is for sure: Pinhook truly was an adventure. The abundance of wildlife there was like no other area I had hunted. On any given day, particularly during high water, it was not unusual to see a variety of poisonous snakes, primarily canebrake and pygmy rattlers, with an occasional diamondback thrown in. At night we often took the kids riding through the area, "shining" alligator eyes as the gators lay near the many culverts flowing from one cypress pond to another. There were lots of hogs, bears and much to a dog hunter's disgust, skunks. My keen-nosed dogs would often amaze my fellow hunters with their trailing wizardry by pursuing one of those striped stinkers.

Most of the time when a dog got lost in this 20,000-acre block, we figured "Old Spot" eventually would work his way back to camp. In spite of the abundant wildlife in the area, we found that humans were the real threat to lost dogs. Wild animals generally won't bother a dog, but people will. Since outsiders did not have access to the area, lost dogs usually came home unmolested. Yet no self-respecting dog voluntarily returned to camp during daylight hours. No sir, if they came back on their own, they'd wait until the wee hours of the morning, when the camp was quiet and everyone was asleep. It was at this carefully chosen moment that they'd creep into camp and head straight for the dog pens. They would then run laps around the penned-in dogs until all of them were awake and barking and whining and baying at the top of their lungs. Yes sir, they knew when to come home.

Klay grew up with a weekly culture shock every fall, consisting of several days of city life interspersed with several days of the ultimate woods life. Who wouldn't appreciate this kind of living? We were always together while hunting in Pinhook, except when I took our pack of beagles to make a drive. Since Klay's head stood barely above the shorter palmettos in those days, and because driving the dogs was often rough sledding for even the best of adults, I usually left him in the truck with instructions that if he had a problem, to blow the horn until I returned.

One cool, autumn day I headed out on a drive with my beagle pack and hadn't gone a hundred yards when Klay began blowing the horn on my truck. I ran back to see what was wrong, leaving the dogs "cold trailing" toward a swamp. Klay announced that he wanted to go with me; he'd had enough of sitting all alone in the truck. There was no time to argue, so I lifted him out and said "OK son, let's go." Off we went through a palmetto prairie a good foot higher than Klay's head. Barely another hundred yards into the woods I heard those familiar words every parent dreads: "Daddy, carry me."

"Son, I can barely walk in these woods. I can't carry you."

"Daddy, I'm scared."

Oh great, I thought. My dogs are trailing off on a likely buck track, getting hotter every minute, and my macho son has chosen this moment to have a panic attack. I looked down at him and imagined what it must have felt like down there among the blinding bushes and crawling vermin. How big and overpowering everything must appear from that vantage point.

"Son, I can't carry you, but take my hand and follow me." Carrying my shotgun in one hand while holding Klay's hand behind me with the other made it difficult to walk. Every time I took a step, the heel of my boot nailed Klay in the shins. I'd have to work out something better quickly because the dogs were about to "jump," and I had about three minutes to get ahead of them or lose the chance.

In a flash of brilliance, I took a dog leash out of my pocket, gave the looped end to Klay to hold and attached the other end to the back of my belt. Maybe this direct connection to me would ease his fears of getting left or lost and would leave me with two free hands.

I asked him if he thought he could keep up with me if I moved quickly. He eagerly nodded, and with Klay safely attached, off we went. Everything worked like a charm as we hustled our way through the gallberries and palmettos, attempting to position ourselves in a likely spot should the deer jump.

As we came to a small clearing, I heard the undeniable sound of five beagles screaming their heads off at a deer they must have stepped right on top of. The deer was running through the swamp with the dogs close behind. I realized I must quickly cover another hundred yards to get a chance at seeing the deer. I looked at Klay and said, "Son, you better run or learn to ski because I'm fixing to cover some ground."

He gave a half-scared, half-excited look as I turned to run to the head of the swamp in hopes that I would be able to cut off the deer. The sound of squalling dogs became a deafening roar as it reverberated across the swamp water, which served as a giant megaphone. I could hear the deer ahead of the dogs plopping through the water as Klay and I burned out at warp speed through the palmettos and around the trees. I knew that if I could just reach the three-rut trail that bisected the swamp and the hardwoods, I should see the deer.

All I had to do was jump one fallen log and I'd be home free. As I neared the ▷

The author's favorite hunting companion.

log, I gained speed and took a mighty leap. Just as I became airborne I realized Klay had tripped. Needless to say, in one millisecond I was stopped in midair as my pants were unceremoniously yanked down to the top of my boots. I bit the dirt with my feet stretched out behind me and the barrel of my shotgun stobbed into the ground.

Once again, man's quest for wildlife had been foiled, this time at the hands of a 5-year-old. By the time I got my dungarees back up and the dirt out of the barrel, the dogs and the deer were history and I was left with a winded little boy who thought it was all great sport. "That was fun, Daddy. Let's do it again!"

Nothing stays the same. Pinhook has changed, and I haven't hunted there in 10 years. In fact, the federal government is purchasing much of it. I like that, since someday Klay will be able to go back and visit those places that should hold good memories for him.

Klay is a junior in college now, working on an engineering degree and has his own big boy toys and hunting partners. I now know those "aggravating" days of total dependence are over, and the truth is, I miss it. It has dawned on me of late that the best hunting partner a man can have is his own son. I guess these revelations have been happening to fathers for centuries, as well they should.

I remember one sleepy Saturday morning in my teenage years when my daddy came to get me up to go fishing. His disappointment was obvious when I told him I wouldn't be going with him that morning. I know the strength it must have taken to say, "OK son, maybe next week." I remember hearing him hook up the boat that morning all alone in the dark back yard and slowly ease out of the driveway in that dilapidated '39 Ford. I remember thinking how I'd miss eating breakfast at the diner and how I wouldn't get to see the sunrise over the St. Johns River with the idol of my life squinting his eyes into that growing red glow, saying, "Looka there Kenny, ain't that pretty?"

I remember not having a clue as to why I didn't go with him that morning, but it's clear to me now. There comes a time in a young man's life when he must begin standing on his own feet. There comes a time when the lifeline provided by something as common as a dog leash just isn't necessary anymore. When that time comes, daddies must step aside. My daddy did it that morning in the mid '50s. I've been doing it for a while. It's good to see little boys become big boys and be able to stand above the palmettos and see things for themselves, but it's not easy on daddies. Nevertheless, we're supposed to remember things like this. And if we do, we know that "Junior's" not leaving, he's just making his own drives now while Daddy relaxes in the truck.

I often wonder if other parents have had the many opportunities I've had. I've seen many parents have varying degrees of success in rearing their children, and while I wouldn't insist that one take a child hunting or fishing in order to be a successful parent, I'd surely recommend it. There's something about a parent and child facing the wilderness together that provides trust and a mutual dependency that becomes a lifelong bond even teenage years and hard times can't break. It's there, and it's strong, and it cannot be interrupted, even by the closing of a casket.

My own father's gone now, but the memories he gave me and the guiding hand he so gladly provided are still present. I can't smell the exhaust of an outboard motor or hear the waves slapping against the bottom of a boat without thinking of him.

Maybe 20 or 30 years from now I'll be visiting at Klay's house, perhaps at Thanksgiving. I'll be sitting inside listening to a group of old ladies talking about their favorite recipes, and I'll hear a truck door slam. I'll rock forward two or three times and finally get the momentum to stand up and step gingerly toward the front door. There'll be Klay backing his pick-up out of the driveway, and I'll open the front door of the house in hopes that he'll see me. I'll stare his way with a forlorn look, he'll hit the brakes and grin and motion for me to come on. I'll scurry on aged legs trying to avoid tripping on untied shoe laces, being careful not to fall in the flower bed, as he patiently waits for his worn-out old daddy to accompany him to the gas station.

It'll be one of those times when nothing will be said, but we'll both smile and quietly remember another time, another day. ◆

When he's not hunting or fishing, Ken Stivers is a senior executive assistant in the Commission's Tallahassee office.

Florida Buck Registry

Compiled by Thomas J. Wright

For 10 years, hunters have been bringing their deer racks to the Game and Fresh Water Fish Commission to see if they qualify for listing in the Florida Buck Registry. During that time, members of the Commission's Wildlife Reserve have scored nearly 2,000 sets of antlers.

Established in 1982, the Florida Buck Registry serves several purposes. It recognizes sportsmen who take trophy bucks, and it helps educate the public about what is necessary to produce such bucks – namely sound habitat management and controlled harvest of does and small bucks. In order to qualify for the registry, a deer with typical antlers must have a minimum score of 100 inches based on the Boone and Crockett measuring method. Bucks with non-typical racks must score at least 125 B&C inches. The deer must have been taken in Florida by a legal method. Deer taken in previous seasons are eligible for entry.

Of the 1,919 racks scored by reservists since 1982, all but 200 have qualified for entry. The Northwest Region has produced the most trophy bucks -- 599, followed by the Central Region with 524, the Northeast Region with 356, the South Region with 192 and the Everglades Region with 48.

None of the antlers submitted for scoring last year cracked the statewide top 10 list of typical bucks, although several qualified for the top 10 in their respective regions. The Central and South regions each have one new member, and the Everglades has two. None was taken during the 1991-92 seasons. In fact, one was taken as far back as 1962. One deer taken in Gadsden County last year qualified as a top 10 non-typical rack. We've added a new category to this year's compilation, a listing of the largest typical and non-typical bucks taken during the 1991-92 hunting seasons.

To have your deer rack scored, contact the Wildlife Reserve Coordinator at the nearest regional office listed on page 48.

NORTHWEST REGION – TOP 10 TYPICAL BUCKS

Name	Location	Date	Antler Score
Larry Furr	Gadsden County	1977	168 1/8
Danny Raines	Jackson County	1973	154 3/8
H. M. Butler	Gadsden County	1979	153 7/8
Nancy Sumner	Liberty County	1981	152 3/8
Ramey Gilley	Jackson County	1964	152 1/8
Robert Jones	Calhoun County	1985	150 4/8
Jay Taylor	Jefferson County	1987	150 2/8
Richard Hayes	Gadsden County	1989	148 5/8
Eric Richardson	Liberty County	1988	148
William C. Coxetter	Jefferson County	1984	147 7/8

NORTHEAST REGION – TOP 10 TYPICAL BUCKS

Name	Location	Date	Antler Score
Chris Harrell	Madison County	1987	156 7/8
Gary W. Leis	Taylor County	1987	156 5/8
Robert S. Ballard	Columbia County	1980	153 1/8
Clifton Davis	Alachua County	1986	152 7/8
Clifford Burnham	Lochloosa WMA	1978	150 2/8
C. Frank Jones	Levy County	1957	149 2/8
Artie Hall	Alachua County	1984	148 5/8
Richard K. Lee	Hamilton County	1977	146 6/8
Jack Tarr	Osceola WMA	1974	143 6/8
Jerry L. Page	Madison County	1989	142 7/8 ▷

CENTRAL REGION – TOP 10 TYPICAL BUCKS

Name	Location	Date	Antler Score
Robbie Hastings	Ocala National Forest	1940	154 3/8
Melvin Arline	Citrus WMA	1980	152 5/8
Charles Roberts	Fort McCoy WMA	1989	151 4/8
Herbert G. Weagraff	Orange County	1986	149 4/8
Rick Hannis	Brevard County	1985	146 7/8
Ronald L. Waldron	Orange County	1975	144 5/8
Jim Wilson	Brevard County	1984	143 5/8
Randy Alderman	St. Johns County	1966	142 3/8
Pete Peterson	Marion County	1962	142
Melvin Arline	Citrus County	1983	141 5/8

SOUTH REGION – TOP 10 TYPICAL BUCKS

Name	Location	Date	Antler Score
Bill Scharber	Pasco County	Unk.	153 5/8
Mike Sherouse	Hernando County	1970	150 7/8
Pete Wyrosdick	Green Swamp WMA	1989	150 7/8
Charles P. Lykes Jr.	Highlands County	1977	150 6/8
Max Boswell	Glades County	1990	146 4/8
Matt Sullivan	Arbuckle WMA	1979	143
Stanley Gude	Pasco County	Unk.	140 2/8
Lee Sisson	Hardee County	1988	139 1/8
Mark Croft Sr.	Pasco County	1980	139
Henry Boyett	Pasco County	1955	137 2/8

EVERGLADES REGION – TOP 10 TYPICAL BUCKS

Name	Location	Date	Antler Score
G.P. Holly	St. Lucie County	1978	145
Jim Wilson	Indian River County	1985	144
Tom McBroom II	Okeechobee County	1966	140 1/8
Reese Suggs	Martin County	1982	137 4/8
Greg Cadenhead	Indian River County	1981	134 1/8
Jack Daughtrey	Martin County	1964	132
Joe T. Lee	Henry County	1972	131 3/8
James N. Orth	Indian River County	1966	131 1/8
Glenn Schenavar	Indian River County	1987	128 5/8
Ellis L. Ross	Palm Beach County	1968	126

TOP 10 FLORIDA BUCK REGISTRY

Typical

Typical antlers are symmetrical in form, with matching pairs of tines from the upper surface of both main beams.

Name	Location	Date	Antler Score	No. of Tines
Larry Furr	Gadsden County	1977	168 1/8	14
Chris Harrell	Madison County	1987	156 7/8	12
Gary W. Leis	Taylor County	1987	156 5/8	11

Danny Raines	Jackson County	1973	154 3/8	10
Robbie Hastings	Ocala National Forest	1940	154 3/8	12
H.M. Butler	Gadsden County	1979	153 7/8	12
Bill Scharber	Pasco County	Unk.	153 5/8	10
Robert S. Ballard	Columbia County	1980	153 1/8	11
Clifton Davis	Alachua County	1986	152 7/8	11
Melvin Arline	Citrus WMA	1980	152 5/8	15

Non-Typical

Non-typical antlers are frequently nonsymmetrical and have unmatching tines growing from the sides or lower surfaces of both main beams. They also may have tines on the upper beam surface.

Name	Location	Date	Antler Score	No. of Tines
Clark Durrance	Wakulla County	1940s	201 3/8	25
Henry Brinson	Jackson County	1959	186	29
W.L. Hurst	Calhoun County	1970	181 2/8	22
Clay H. Mickler	Pasco County	1985	170 4/8	20
Angus Hinson	Gadsden County	1992	167 4/8	16
Donnie Nicholson	Escambia County	1972	164 5/8	14
Billy Joe Bass	Madison County	1975	163 1/8	16
Charles Dean	Taylor County	1936	162 5/8	18
Ronnie Elrod	Highlands County	Unk.	160 6/8	22
Alton Bonds	Suwannee County	1986	156 5/8	15

1991-92 LARGEST BUCKS

Typical

Name	Location	Antler Score
Donnie Melvin	Jackson County	147 5/8
James Grantham	Jackson County	144 3/8
Michael R. Lynn	Madison County	142 1/8
D.C. Chestnut	Alachua County	141 5/8
Don Ripple	Madison County	141 4/8
Mark A. Maxwell	Gadsden County	141 1/8
Marcus Granger	Jackson County	137 4/8
Sam Stalnaker	Madison County	137 2/8
George Mallia	Gadsden County	137
Todd Tindell	Bay County	135 2/8

Non-Typical

Name	Location	Antler Score
Angus Hinson	Gadsden County	167 4/8
Sam Stalnaker	Madison County	144

By Captain Ed Tyer

Small Game Season and Blaze Orange

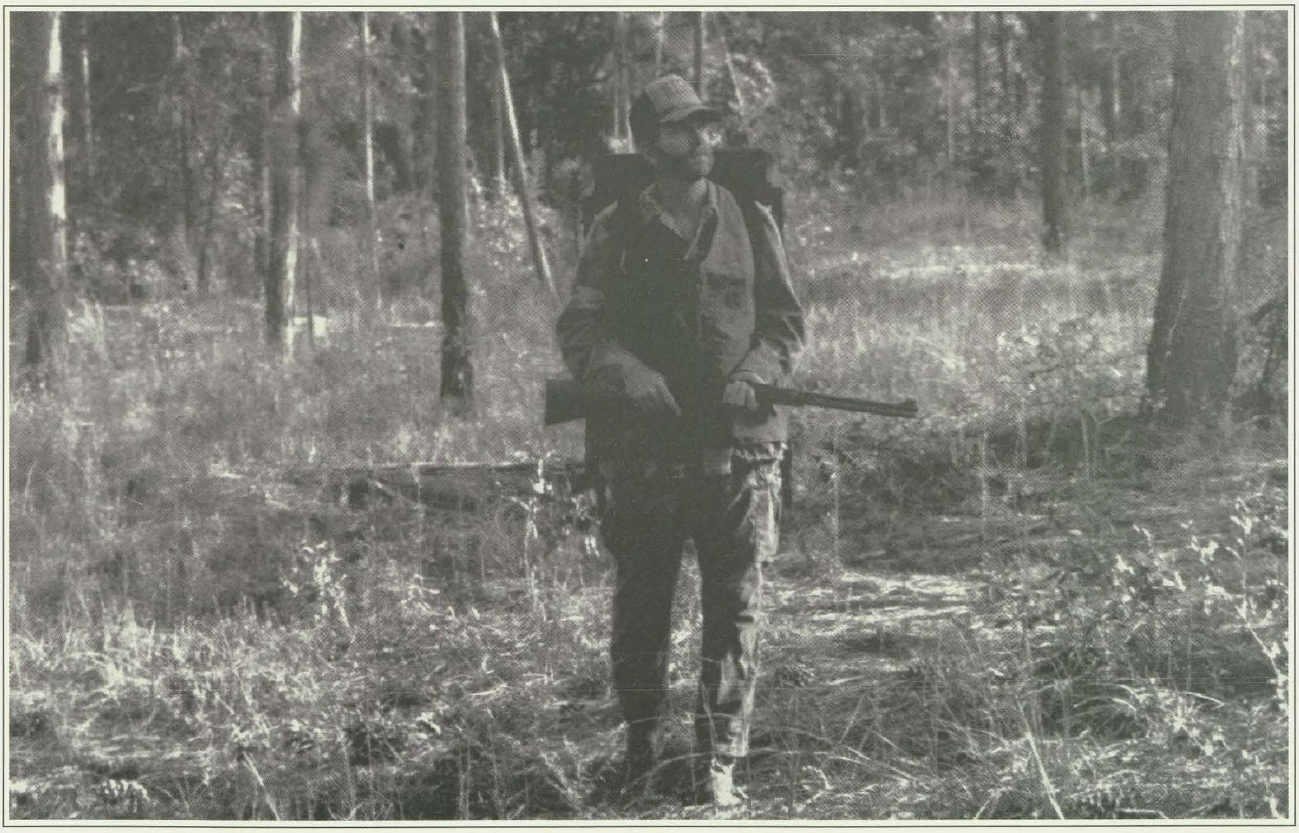
"Why should we have a law covering that? We ought to do it out of common sense."

That's how one hunter responded to the question of whether to wear blaze orange while hunting squirrels and rabbits. Sure, there are only a few "mistaken-for-game" accidents each year during small game season, but how many have to occur before we take action?

Blaze orange is required only for deer hunters and anyone accompanying them on public lands. The law does not cover small game hunting. But, already this season a squirrel hunter mistook his companion for an animal and killed him with a shot in the neck from his .22 rimfire. No one can say for certain that wearing a blaze orange hat and vest would have prevented this accident, but there is a strong possibility. Blaze orange is not a color found in nature and therefore is hard to mistake for wildlife.

So, even though the law doesn't require you to wear hunter orange, common sense tells you what is necessary to protect yourself. I'm told that my chances of winning the lottery are 14,000,000 to one, so I buy two tickets and double my chances. I know my chances of being mistaken for game are very slim, so I wear blaze orange and reduce them to very, *very* slim.

Here's to safe hunting.



By Inspector Kyle W. Hill

Question: Is it permissible to skin and butcher a deer in hunting camp without having to tag it?

Answer: No! It is illegal to dismember deer in the field or in camp, unless you affix an identifying tag to each portion. The tag must show the name, address and hunting license number of the person who killed it, along with the date and location where it was taken. In addition, each tagged portion must be readily traceable to the portion identifying the animal's sex.

You also must keep the deer's head and sex evidence available for inspection by a wildlife officer. These regulations also apply to turkeys taken during fall and spring seasons. Furthermore, these identification requirements apply while the game is in transit from forest or camp to the domicile of its possessor.

Question: Is it legal to use "sabot" bullets in a muzzleloading firearm during a primitive weapons season? How about scopes?

Answer: Yes. There is no restriction on the type of projectile used when hunting, provided that the muzzleloader is not adaptable to the use of self-contained cartridge ammunition. A sabot is a plastic carrier used to position a bullet in a gun muzzle and prevent the escape of gasses. The Florida Wildlife Code states that muzzleloading guns of less than .40 caliber firing a single bullet, or of less than 20 gauge firing two or more balls, are prohibited for taking deer or bear. Therefore, the bullet used in the sabot should be at least .40 caliber.

Scopes are legal to use on muzzleloading firearms without restriction.

Question: How close to roads and houses may I hunt?

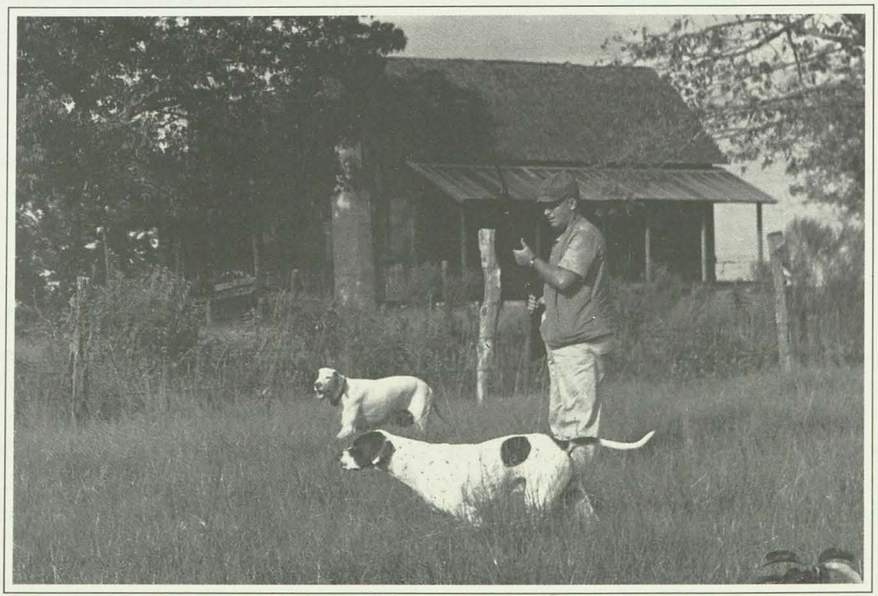
Answer: Two laws govern the discharge of firearms near roads and residences.

Under the Florida Wildlife Code, it is unlawful to take or attempt to take wildlife on or upon the right-of-way of any federal, state or county-maintained road, whether paved or otherwise. Thus, it is unlawful to "display" or use a gun on any such road, except those within Type I or II wildlife management areas.

Chapter 790.15, Florida Statutes, prohibits a person from knowingly discharging a firearm in any public place, over paved roads or over any occupied dwelling.

Each year the Commission receives hundreds of complaints from citizens whose houses are being showered by shotgun pellets from nearby dove shoots. We also receive similar complaints about duck hunters from residents living on lake shores.

These are potentially dangerous situations and very poor public relations for all sportsmen. Please don't hunt in proximity to housing developments or residences unless you are certain that your shot will fall in a safe area. Be a courteous and law-abiding sportsman.



GFC

Compiled by Scott Ball

CHILES APPOINTS JULIE MORRIS TO COMMISSION

Julie K. Morris, 40-year-old coordinator of New College's Environmental Studies Program, is the newest member of the Florida Game and Fresh Water Fish Commission.

A 22-year resident of Sarasota, Morris was closely involved with the Commission from 1983-1990, when she served on the Nongame Wildlife Advisory Council.

"I gained a lot of respect for Commission staff during the years I served on the Nongame Council," Morris said. "It was that experience that interested me in this appointment."

Morris credits much of her skills, training and experience to her years of volunteer work with the Sierra Club, where she worked to conserve the rural character of the Myakka River Basin.

"People have to feel some attachment to a place if they're going to be motivated to conserve it. Outdoor experiences and situations teach us about our local habitat and what makes up the web of life where we live. We also need to belong to a community that believes it can protect the places it values."

As a Commissioner, Morris would like to support, strengthen and expand the Commission's programs in public education, nongame wildlife conservation and habitat protection.

"I'm a consensus builder," Morris explained, "and one of my major goals is to create better working relationships between the Commission and Florida's environmental community. Habitat loss, not hunting, is the biggest problem facing Florida wildlife. I'd prefer that we spend our time working together to protect and restore the lands our native species need to survive."

Morris is the third woman to be appointed to the five-member panel. She will serve a five-year term, filling the vacancy created by the departure of Don Wright of Orlando, whose term expired.

— Susan Cerulean

URBAN FISHERIES PROJECT EARNS AWARD

The Game and Fresh Water Fish Commission's Jacksonville Urban Fisheries Project recently received the 1992 American League of Anglers and Boaters Award.

The award is presented annually to recognize the most outstanding use of federal aid from the Wallop-Breaux Trust Fund. In 1991, the American Fisheries Society also singled it out as the Outstanding Federal Aid in Sport Fish Restoration Project.

Both awards praise the Commission's work with the Jacksonville Parks and Recreation Department for creating more fishing opportunities for Duval County residents. The project established fisheries in nine man-made ponds which previously provided virtually no fishing opportunities at all. In addition, the project teaches children about the aquatic environment and encourages the ethical use of aquatic resources. A Commission study shows that nearly $1 million is spent annually on fishing in the Jacksonville area as a direct result of this project.

The Federal Aid in Sport Fish Restoration Program is a "user-pays" program that seeks to improve sport fishing and boating opportunities by providing funding to state agencies for research, management and development activities that deal with sport fish. The program established the Wallop-Breaux Trust Fund, which comes from excise taxes on fishing tackle, motorboat fuels and import duties on tackle and yachts.

— Mark Trainor

COMMISSION BIOLOGIST HONORED

The Florida Wildlife Federation has named Commission wildlife biologist Dave Maehr its Wildlife Conservationist of the Year for 1992.

The Federation cited Maehr's "sincere dedication and efforts toward protection and restoration of one of Florida's, and the world's, most endangered species...the Florida panther." Maehr joined the Commission as a research biologist in 1980 and has worked with panthers for the past seven years. He has written or co-written 13 scientific publications and seven popular articles on panthers. He also conducts research on the Florida black bear.

Maehr received the award at the Federation's annual banquet in Palm Beach Gardens last November.

LAND-USE DONATION AIDS RANGE CONSTRUCTION

Construction of a public shooting range in Santa Rosa County should begin in January, thanks to Champion International's donation of the use of 33 acres of land.

Capt. Ed Tyer, who supervises the Commission's Hunter Education Program, said the donation, worth some $40,000, will be used to match federal funding to build the facility. Seventy-five percent of the construction costs will be funded by the Pittman-Robertson Act, which imposes an excise tax on firearms, ammunition and archery equipment.

"We have needed a facility like this for a long time," Tyer said. "This site is suitable for inclusion of a 100-yard rifle range, 50-yard pistol range and facilities for archery and shotgun practice."

Tyer said that once construction is completed in March or April, the range will be open five days per week. The Santa Rosa County range will be the fifth operated by the Commission. Others are located in Lake City, Cecil M. Webb Wildlife Management Area and Apalachicola and Ocala national forests.

All Commission-managed ranges are open to the public, except when they are occasionally reserved for use by Hunter Education classes. There is no charge. Target frames are provided, but shooters must supply their own targets.

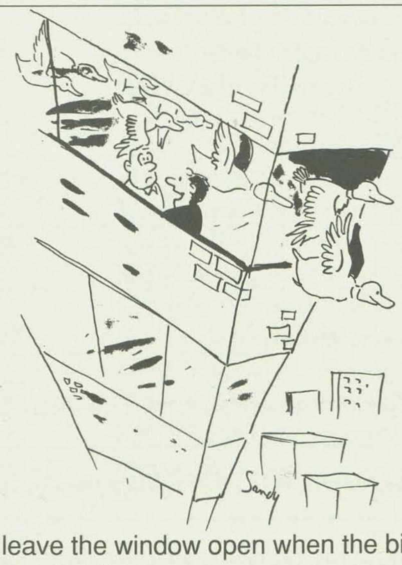
MIGRATORY WHOOPING CRANE FLOCK GROWS

While Florida scientists are working to re-establish a flock of whooping cranes in the Kissimmee River Valley (see story, page 10), federal officials report an increase in the number of migratory whoopers.

The U.S. Fish and Wildlife Service (USFWS) was expecting about 145 whooping cranes to migrate from Canada to the Aransas National Wildlife Refuge for the winter. Last year's migratory flocked numbered 132. Poor weather has hampered attempts to confirm the number of arrivals, but at last count, 134 had completed the trip. Cool spring weather last year made for improved nesting conditions in Canada's Northwest Territories. As a result, a record 40 pairs of whooping cranes produced an estimated 35 chicks. Fifteen to 20 survived for the trip south, compared to eight in 1991.

Wild whooping cranes leave Canada in September and October and travel for several weeks before reaching their destination along the Texas coast. Along the way, they must survive power lines, fences, the threat of disease and human disturbance while roosting and feeding.

Meanwhile, USFWS biologists have sent four whooping cranes to the Calgary Zoo in Canada. These birds, and others to follow, will have a role in providing captive-produced cranes for release into the wild later this decade. The goal is to establish a second migratory flock in Canada.



I leave the window open when the birds are migrating.

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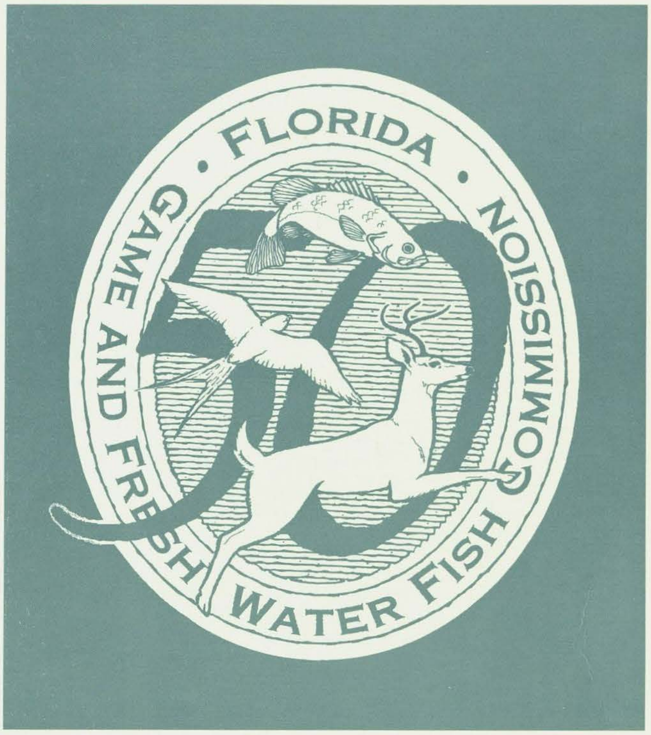
Floridana

Throughout 1993, the Florida Game and Fresh Water Fish Commission will be celebrating its 50th anniversary as a constitutional agency. Although wildlife laws, and administrations to enforce them, have been around in Florida since 1828, the Commission as it currently exists came into being January 1, 1943.

Just seven years after the United States purchased Florida from Spain, an 1828 law prohibited night hunting with a light west of the Suwannee River. In 1893, the shipment of quail out of Florida was banned, punishable by a fine of $500-$1,000 or a 60- to 100-day jail term. The first game wardens were hired in 1897; fish wardens, working for local sheriffs, appeared the same year. By 1905, both were governor-appointed positions with a salary of $2 per day.

The first Florida Game Commission was created in 1913 but lasted only two years, at which point protection of wildlife became the responsibility of individual counties. Within a decade, there were 160 confusing, county-specific game laws on the books.

A State Department of Game and Fresh Water Fish was established in 1925. It set annual hunting license fees of $10 for residents and $25 for non-residents. Residents could fish for free, but non-residents had to purchase a $5 annual license. The Legislature repealed all local hunting and fishing laws in 1927, but within two years, statewide regulations had become just as confusing.


FLORIDA
GAME AND FRESH WATER FISH COMMISSION
50

In 1933, the Department was dissolved. Its responsibilities were assumed by the State Board of Conservation, which already handled saltwater fisheries, oyster fisheries and a geology department. This arrangement lasted just two years before the Legislature authorized a return to the old system of local laws for every county in the state.

In the 1930s, sportsmen banded together to protest the perplexing, often conflicting, mass of regulations. For example, 38 counties had local deer-hunting seasons that differed from the state season. Something had to be done.

In 1941, the Legislature proposed a constitutional amendment establishing a Game and Fresh Water Fish Commission. The Commission would consist of five governor-appointed members serving five-year terms and having the power to set bag limits and regulations. The amendment was ratified by Florida voters in the general election of November 3, 1942 and became effective the following New Year's Day.

To celebrate, FLORIDA WILDLIFE Magazine will devote its November-December issue to the Commission's 50th anniversary. This special edition will feature articles and photographs chronicling the agency's 50 years of stewardship of Florida's fish and wildlife resources. In addition, other 1993 issues will focus on significant events or highlights of the Commission's history.

— Scott Ball

Wildlife at the turn of every page